



INEOS GROUP HOLDINGS S.A.

2019 ANNUAL REPORT

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CERTAIN DEFINITIONS AND PRESENTATION OF FINANCIAL AND OTHER INFORMATION

Unless indicated otherwise in this annual report or the context requires otherwise:

- all references to the “**2019 IGH Notes**” and to the “**Senior Notes due 2019**” are to the €600,000,000 aggregate principal amount of 5³/₄% Senior Notes due 2019 and \$590,000,000 aggregate principal amount of 5⁷/₈% Senior Notes due 2019 issued pursuant to the 2019 IGH Notes Indenture, which were redeemed in full on March 1, 2017;
- all references to the “**2019 IGH Notes Indenture**” are to the indenture dated as of February 18, 2014, between IGH, as issuer, the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee, collateral agent and principal paying agent, the Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, registrar and Luxembourg transfer agent, and the Bank of New York Mellon, as U.S. paying agent and transfer agent, as amended and supplemented from time to time, pursuant to which the 2019 IGH Notes were issued and which has been satisfied and discharged in connection with the redemption of the 2019 IGH Notes;
- all references to the “**2023 Senior Secured Notes**” are to the €770,000,000 aggregate principal amount of 4% Senior Secured Notes due 2023 issued pursuant to the 2023 Senior Secured Notes Indenture, which were redeemed in full on May 1, 2019;
- all references to the “**2023 Senior Secured Notes Indenture**” are to the indenture dated as of May 5, 2015, among INEOS Finance plc, as issuer, the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee, The Bank of New York Mellon (Luxembourg) S.A., as registrar, paying agent and Luxembourg transfer agent and Barclays Bank PLC, as security trustee, as amended and supplemented from time to time, pursuant to which the 2023 Senior Secured Notes were issued and which has been satisfied and discharged in connection with the redemption of the 2023 Senior Secured Notes;
- all references to the “**2024 IGH Notes**” and to the “**Senior Notes due 2024**” are to the \$500,000,000 aggregate principal amount of 5⁵/₈% Senior Notes due 2024 and €650,000,000 aggregate principal amount of 5³/₈% Senior Notes due 2024 issued pursuant to the 2024 IGH Notes Indenture;
- all references to the “**2024 IGH Notes Indenture**” are to the indenture dated as of August 9, 2016, between IGH, as issuer, the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee, collateral agent and principal paying agent, The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, registrar and Luxembourg transfer agent, and The Bank of New York Mellon as U.S. paying agent and transfer agent, as amended and supplemented from time to time, pursuant to which the 2024 IGH Notes were issued;
- all references to the “**2024 IGH Notes Proceeds Loans**” are to the loans advanced under the loan agreement, dated August 9, 2016, between IGH, as lender, and IHL, as borrower, pursuant to which the gross proceeds of the 2024 IGH Notes issuance were advanced to IHL, as amended or partially repaid from time to time;
- all references to the “**2025 Senior Secured Notes**” and to the “**Senior Secured Notes due 2025**” are to the €550,000,000 aggregate principal amount 2¹/₈% Senior Secured Notes due 2025 issued pursuant to the 2025 Senior Secured Notes Indenture;
- all references to the “**2025 Senior Secured Notes Indenture**” are to the indenture dated as of November 3, 2017, among INEOS Finance plc, as issuer, the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee and principal paying agent, the Bank of New York Mellon SA/NV, Luxembourg Branch, as registrar, paying agent and Luxembourg transfer agent and Barclays Bank PLC, as security trustee, as amended and supplemented from time to time, pursuant to which the 2025 Senior Secured Notes were issued;
- all references to the “**2025 Senior Secured Notes Guarantors**” are to IGH and the Guarantors listed in the **2025 Senior Secured Notes Indenture**;

- all references to the “**2025 Senior Secured Notes Proceeds Loan**” are to the loan under the loan agreement, dated November 3, 2017, between the INEOS Finance plc, as lender, and IHL, as borrower, pursuant to which the INEOS Finance plc advanced the gross proceeds of the 2025 Senior Secured Notes to IHL;
- all references to the “**2026 Senior Secured Notes**” and to the “**Senior Secured Notes due 2026**” are to the €770,000,000 aggregate principal amount 2 7/8% Senior Secured Notes due 2026 issued pursuant to the 2026 Senior Secured Notes Indenture;
- all references to the “**2026 Senior Secured Notes Indenture**” are to the indenture dated as of April 8, 2019 among INEOS Finance plc, as issuer, the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee, The Bank of New York Mellon (Luxembourg) SA/NV, as registrar, paying agent and Luxembourg transfer agent and Barclays Bank PLC, as security trustee, as amended and supplemented from time to time, pursuant to which the 2026 Senior Secured Notes were issued;
- all references to the “**2026 Senior Secured Notes Guarantors**” are to IGH and the Guarantors listed in the **2026 Senior Secured Notes Indenture**;
- all references to the “**2026 Senior Secured Notes Proceeds Loan**” are to the loan advanced under the loan agreement, dated April 8, 2019, between INEOS Finance plc, as lender, and IHL, as borrower, pursuant to which the gross proceeds of the 2026 Senior Secured Notes issuance were advanced to IHL, as amended or partially repaid from time to time;
- all references to “**Borrowers**” are to the U.K. Borrower and the U.S. Borrower;
- all references to “**BP**” are to BP p.l.c. and its consolidated subsidiaries;
- all references to the “**Collateral**” are to the collateral provided as security for the Senior Secured Notes Issuer in performance of the obligations of the Parent and the U.S. Borrower under the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, the 2024 IGH Notes Indenture, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement, as applicable;
- all references to the “**Credit Support Deed**” have the meaning ascribed to the term under the caption “Business—Agreements with BP—Credit Support—The Credit Support Deed”;
- all references to the “**Entrepreneurial (Refining) Business**” are to the entrepreneurial activities related to the Refining Business, which includes the sales and distribution of refining products through an entrepreneur business model;
- all references to the “**Entrepreneurial (Refining) Business JV**” are to the joint venture that, following the Refining Divestiture, operates the Entrepreneurial (Refining) Business and is owned by PetroChina (50.1%) and INEOS Investments (49.9%);
- all references to the “**Grangemouth Divestiture**” are to the disposals to INEOS Grangemouth plc (formerly INEOS Grangemouth Limited) (a subsidiary of INEOS Holdings AG) of the shares of INEOS Commercial Services UK Limited and INEOS Chemicals Grangemouth Limited (including the assets and liabilities relating to the petrochemical operations carried out by such entities at or in connection with the Grangemouth site) effective October 1, 2013;
- all references to the “**Guarantors**” are to the guarantors under the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, the 2024 IGH Notes Indenture and the Senior Secured Term Loans Agreement, collectively;
- all references to “**IAS 34**” are to International Accounting Standard 34—Interim Financial Reporting;
- all references to “**IFRS**” are to the International Financial Reporting Standard as adopted by the European Union;

- all references to “**IGH**” or the “**Parent**” are to INEOS Group Holdings S.A. and not to any of its subsidiaries;
- all references to “**IHL**” are to INEOS Holdings Limited, the direct parent company of the Issuer and an indirect wholly owned subsidiary of INEOS Group Holdings S.A.;
- all references to the “**IHL Pledged Shares**” are to 100% of the capital stock of IHL;
- all references to the “**Indentures**” are to the Senior Secured Notes Indentures and the 2024 IGH Notes Indenture, collectively;
- all references to “**INEOS AG**” are to INEOS AG, a subsidiary of INEOS Limited, one of our ultimate parent undertakings;
- all references to “**INEOS Capital**” are to INEOS Capital Limited;
- all references to “**INEOS Group**,” “**INEOS**,” “**Group**,” “**we**,” “**us**” or “**our**” are to INEOS Group Holdings S.A. and its consolidated subsidiaries;
- all references to “**INEOS Investments**” are to INEOS Investments (Jersey) Limited, an entity that is controlled by the principal shareholders of IGH, is not a member of the INEOS Group (but in which the INEOS Group holds certain ordinary shares and is and will be consolidated into our financial statements for so long as we retain the majority of the economic benefits of the entity) and, as a result of the Refining Divestiture, owns a 50.1% interest in the Refining Business JV, a 49.9% interest in the Entrepreneurial (Refining) Business JV, a 50.0% direct interest in the Infrastructure Entity and a 25.05% indirect interest in the Infrastructure Entity by virtue of its 50.1% stake in the Refining Business JV;
- all references to “**INEOS Limited**” are to INEOS Limited, one of our ultimate parent undertakings;
- all references to the “**Infrastructure Entity**” are to INEOS Infrastructure (Grangemouth) Limited, an entity that acquired certain infrastructure assets at Grangemouth, Scotland (principally a power station in Grangemouth, Scotland, and a terminal and other facilities), and which, following the Refining Divestiture, is jointly owned by INEOS Investments (50.0%) and the Refining Business JV (50.0%);
- all references to “**Innovene**” and the “**Innovene business**” refer to (a) all of BP’s petrochemical operating units for olefins, polymers and other derivatives but excluding BP’s Pasadena LAO operations, the Gelsenkirchen naphtha cracking operations and the Munchmunster olefins operation (“O&D”), (b) two integrated refinery plants in Grangemouth, United Kingdom and Lavéra, France, (c) a gas fractionator located in Hobbs, New Mexico and certain related pipelines and (d) existing O&D strategic joint venture investments other than BP’s joint ventures with SECCO and in Malaysia, prior to giving effect to the Innovene Acquisition;
- all references to the “**Innovene Acquisition**” are to the purchase by the INEOS Group on December 16, 2005 of all of the shares and assets comprising the Innovene business pursuant to the Innovene Acquisition Agreement;
- all references to the “**Innovene Acquisition Agreement**” are to the Share Sale and Purchase Agreement dated October 7, 2005, as amended from time to time, among certain subsidiaries of BP, IHL, certain subsidiaries of IHL and INEOS Group Limited;
- all references to “**INOVYN**” are to INOVYN Limited, an affiliate of ours that is indirectly controlled by our controlling shareholders, and its consolidated subsidiaries;
- all references to the “**Intercreditor Deed**” are to the intercreditor deed dated May 12, 2010, as amended and restated on December 23, 2010, as amended on February 18, 2011, February 6, 2012, as amended and restated on May 4, 2012, as amended and restated on May 8, 2013, as amended and restated on July 8, 2014, as amended on May 5, 2015 and January 5, 2017, as amended and restated on November 3, 2017, as amended and restated on April 8, 2019, and as subsequently

amended, supplemented, varied or restated from time to time, among, *inter alios*, the Senior Secured Notes Issuer, the guarantors acceded thereto, the facility agent under the Senior Secured Term Loans Agreement, Barclays Bank plc, as security trustee and the Trustee, in its capacity as trustee under each of the Indentures;

- all references to the “**Köln CoGen Facility**” are to the obligations under a €120 million loan facility;
- all references to the “**LC Borrower**” are to INEOS Treasury (UK) Limited, which entered into the LC Facility;
- all references to the “**LC Facility**” are to the on-demand letter of credit facility entered into by INEOS Treasury (UK) Limited on May 4, 2012 as may be amended, supplemented, varied or restated from time to time as further described under the caption “Description of Certain Indebtedness—Letter of Credit Facility”;
- all references to “**Lux I**” are to INEOS Luxembourg I S.A., which is a direct subsidiary of IGH;
- all references to the “**New Term Loans due 2024**” have the meaning ascribed to the term under the caption “Description of Certain Indebtedness—Senior Secured Term Loans—Overview”;
- all references to the “**Notes**” are to the 2026 Senior Secured Notes, the 2025 Senior Secured Notes and the 2024 IGH Notes, collectively;
- all references to the “**Notes Proceeds Loans**” are to the 2024 IGH Notes Proceeds Loans and the Senior Secured Notes Proceeds Loans, collectively;
- all references to the “**Original Term Loans due 2022**” are to credit facilities due 2022 made available under the Senior Secured Term Loans Agreement, which were converted into new Term Loans due 2022, which were refinanced on November 3, 2017 into New Term Loans due 2024;
- all references to “**PetroChina**” are to PetroChina International (London) Company Limited or one or more of its affiliates, as the context may require;
- all references to the “**Rafnes Borrower**” are to INEOS Rafnes AS (formerly known as Noretyl AS), which entered into the Rafnes Facility;
- all references to the “**Rafnes Facility**” are to the €250 million facility agreement entered into on November 19, 2012 (and as amended from time to time including by an amendment and restatement agreement dated October 30, 2014 and an amendment and accession agreement dated November 8, 2019);
- all references to the “**Refining and Entrepreneurial JVs**” are to the Refining Business JV and the Entrepreneurial (Refining) Business JV, collectively;
- all references to the “**Refining Business**” are to the refining business, consisting principally of the crude oil refining operations carried out at the refineries located at Grangemouth, Scotland, and Lavéra, France, as reported on the historical financial statements of IGH under the Refining segment;
- all references to the “**Refining Business JV**” are to the joint venture that, following the Refining Divestiture, operates the Refining Business and is owned by PetroChina (49.9%) and INEOS Investments (50.1%);
- all references to the “**Refining Divestiture**” are to the disposal on July 1, 2011, by subsidiaries of Lux I of (i) the Refining Business and the Entrepreneurial (Refining) Business to joint ventures formed between PetroChina and INEOS Investments and (ii) the Infrastructure Entity to a joint venture formed by INEOS Investments (50.0%) and the Refining Business JV (50.0%);

- all references to the “**Schuldschein Loan**” are to the floating rate loan which has been made available under the Schuldschein Loan agreement on March 26, 2019, as further described under the caption of “Description of Other Indebtedness—Schuldschein Loan”;
- all references to the “**Schuldschein Loan Agreement**” are to the assignable loan agreement dated March 22, 2019, among, *inter alios*, INEOS Finance plc, as borrower, certain subsidiaries of IGH, Deutsche Bank Aktiengesellschaft, as bank, creditor and paying agent, and Wilmington Trust SP Services (Frankfurt) GmbH, as trustee, as subsequently amended, supplemented, varied, novated, extended or replaced from time to time;
- all references to the “**Schuldschein Loan Trustee**” are to the Wilmington Trust SP Services (Frankfurt) GmbH in its capacity as trustee under the Schuldschein Loan Agreement;
- all references to the “**Schuldschein Proceeds Loan**” are to the loans advanced under the Schuldschein Loan, between the INEOS Finance plc, as lender, and IHL, as borrower, pursuant to which the gross proceeds of the Schuldschein Loan were advanced to IHL, as amended or partially repaid from time to time;
- all references to the “**Securitization Program**” are to the securitization program as further described under the caption “Description of Certain Indebtedness—Securitization Program”;
- all references to the “**Security Trustee**” are to Barclays Bank plc as security trustee under the Senior Secured Term Loans Agreement and the Senior Secured Notes Indentures and senior security agent under the Intercreditor Deed;
- all references to the “**Senior Secured Note Documents**” have the meaning ascribed to the term in the Intercreditor Agreement, including but not limited to the Senior Secured Notes Indentures;
- all references to the “**Senior Secured Notes**” are to the 2026 Senior Secured Notes and the 2025 Senior Secured Notes, collectively;
- all references to the “**Senior Secured Notes Indentures**” are to the 2026 Senior Secured Notes Indenture and the 2025 Senior Secured Notes Indenture, collectively;
- all references to the “**Senior Secured Notes Issuer**” are to INEOS Finance plc;
- all references to the “**Senior Secured Notes Proceeds Loans**” are to the 2026 Senior Secured Notes Proceeds Loan and the 2025 Senior Secured Notes Proceeds Loan, collectively;
- all references to the “**Senior Secured Term Loans**” and to the “**Term Loans**” are to the credit facilities which have been made available under the Senior Secured Term Loans Agreement at the date of this annual report, as further described under the caption “Description of Certain Indebtedness—Senior Secured Term Loans”;
- all references to the “**Senior Secured Term Loans Agreement**” are to the credit agreement dated as of April 27, 2012, among, *inter alios*, INEOS Finance plc and INEOS US Finance LLC, as borrowers, certain subsidiaries of IGH, Barclays Bank PLC and certain lenders, as subsequently amended, supplemented, varied, novated, extended or replaced from time to time under one or more credit facilities;
- all references to the “**Senior Secured Term Loans Eurobond**” are to the eurobond entered into by IHL, as issuer, and INEOS US Finance LLC, as subscriber, pursuant to which INEOS US Finance LLC subscribed for bonds to the value of the gross proceeds of its borrowings under the Senior Secured Term Loans Agreement;
- all references to the “**Senior Secured Term Loans Euro Proceeds Loans**” are to the loans under the loan agreements entered into by INEOS Finance plc, as lender, and IHL, as borrower, pursuant to which INEOS Finance plc advanced the gross proceeds of its borrowings under the Senior Secured Term Loans Agreement;

- all references to the “**Senior Secured Term Loans Proceeds Loans**” are to the Senior Secured Term Loans Euro Proceeds Loans and to the Senior Secured Term Loans Eurobond;
- all references to “**Styrolution**” are to INEOS Styrolution Group GmbH or INEOS Styrolution Holding Limited, subsidiaries of INEOS Industries Limited through its wholly owned subsidiary, INEOS Industries Holdings Limited;
- all references to “**subsidiaries**” are to all, whether operating or non-operating, the direct and indirect subsidiaries of IGH in the Group;
- all references to the “**Term Loans due 2018**” are to credit facilities due 2018 made available under the Senior Secured Term Loans Agreement that have been repaid in full;
- all references to the “**Term Loans due 2020**” are to credit facilities due 2020 made available under the Senior Secured Term Loans Agreement that had been extended to March 2022 and converted into Term Loans due 2022, which have been repaid in full;
- all references to the “**Term Loans due 2022**” are to credit facilities due 2022 made available under the Senior Secured Term Loans Agreement, including the Original Term Loans due 2022 and the Terms Loans due 2020 which were converted into such facilities, which have been repaid in full;
- all references to the “**Term Loans due 2024**” have the meaning ascribed to the term under the caption “Description of Other Indebtedness—Senior Secured Term Loans—Overview”, which were refinanced on November 3, 2017 into New Term Loans due 2024;
- all references to the “**Trustee**” are to The Bank of New York Mellon, London Branch in its capacity as trustee under the Indentures;
- all references to “**U.K. Borrower**” are to INEOS Finance plc; and
- all references to “**U.S. Borrower**” are to INEOS US Finance LLC.

Unless otherwise stated, references to capacities of INEOS’s facilities refer to the “nameplate capacities,” or theoretical maximum production capacity of such facilities; the effective capacity of such facilities may, however, in fact be more or less than the nameplate capacity due to the current operating conditions and asset configuration of each facility.

All references to “**tonnes**” are to metric tonnes.

We have provided definitions for some of the industry terms used in this annual report in the “Glossary of Selected Terms” beginning on page G-1 of this annual report.

FORWARD-LOOKING STATEMENTS

This annual report includes “forward-looking statements,” within the meaning of the U.S. securities laws and the laws of certain other jurisdictions, based on our current expectations and projections about future events, including:

- the cyclical and highly competitive nature of our businesses;
- our significant debt service obligations, as well as our ability to generate sufficient cash flow to service our debt;
- risks associated with our structure and indebtedness;
- our sales growth across our principal businesses and our strategy for controlling costs, growing margins, increasing manufacturing capacity and production levels, and making capital expenditures;
- our ability to deleverage through strategic disposals of certain assets and non-core businesses;
- raw material costs or supply arrangements;
- our technological and manufacturing assets and our ability to utilize them to further increase sales and the profitability of our businesses;
- impacts of climate change, including regulatory requirements on greenhouse gas emissions, the costs to purchase emissions allowances and the physical risks to our facilities of severe weather conditions;
- current or future health, safety and environmental requirements and the related costs of maintaining compliance with, and addressing liabilities under, those requirements;
- operational hazards, including the risk of accidents that result in injury to persons and environmental contamination;
- our ability to retain existing customers and obtain new customers;
- our ability to develop new products and technologies successfully;
- our ability to successfully integrate acquired businesses with our historical business and realize anticipated synergies and cost savings, including with respect to businesses acquired;
- currency fluctuations;
- our ability to attract and retain members of management and key employees;
- our relationship with our shareholders, affiliates and joint ventures; and
- general economic, social or political conditions.

All statements other than statements of historical facts included in this annual report including, without limitation, statements regarding our future financial position, risks and uncertainties related to our business, strategy, capital expenditures, projected costs and our plans and objectives for future operations, may be deemed to be forward-looking statements. These forward-looking statements are subject to a number of risks and uncertainties, including those identified under the “Risk Factors” section in this annual report. Words such as “believe,” “expect,” “anticipate,” “may,” “assume,” “plan,” “intend,” “will,” “should,” “estimate,” “risk” and similar expressions or the negatives of these expressions are intended to identify forward-looking statements. In addition, from time to time we or our representatives, acting in respect of information provided by us, have made or may make forward-looking statements orally or in writing and these forward-looking statements may be included in but are not limited to press releases (including on our website), reports to our security holders and other communications. Although we believe that the expectations reflected in such forward-looking statements are reasonable, we can give no assurance that such expectations will prove to be correct. Any forward-looking

statement speaks only as of the date on which it is made, and we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the cautionary statements referred to above and contained elsewhere in this annual report, including those set forth under the section entitled “Risk Factors.”

The risks described in the “Risk Factors” section in this annual report are not exhaustive. Other sections of this annual report describe additional factors that could adversely affect our business, financial condition or results of operations. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time and it is not possible for us to predict all such risk factors, nor can we assess the impact of all such risk factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. Given these risks and uncertainties, you should not place undue reliance on forward-looking statements as a prediction of actual results.

HISTORICAL AND CURRENT MARKET AND INDUSTRY DATA

Historical and current market data used throughout this annual report were obtained from internal company analyses, consultants’ reports and industry publications. In particular, information has been provided by Nexant Limited (“Nexant”), an industry consultant. Industry surveys and publications generally state that the information contained therein has been obtained from sources believed to be reliable, but the accuracy and completeness of information contained therein is not guaranteed. While we accept responsibility for the accurate extraction and reproduction of this market data, we have not independently verified such data and cannot guarantee its accuracy or completeness. In addition, certain statements in this annual report regarding the petrochemical industry, our position in that industry and our market share are based on internal company estimates, our experience and investigations of market conditions and our review of industry positions. We cannot assure you that any of the assumptions underlying those statements are accurate or correctly reflect our position in the industries. Similarly, internal company analyses, while believed by us to be reliable, have not been verified by any independent sources, and neither we nor any of the initial purchasers make any representation as to the accuracy of such information. While we are not aware of any misstatements regarding any industry or similar data presented herein, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed under the “Risk Factors” section in this annual report.

FINANCIAL INFORMATION INCLUDED IN THIS ANNUAL REPORT

We have included in this annual report the INEOS Group Holdings S.A. audited financial statements for the year ended December 31, 2019, prepared in accordance with IFRS.

RISK FACTORS

Risks Relating to Our Businesses and Industries

Cyclicality of the petrochemical industry—Changing market demands and prices may negatively affect our operating margins and impair our cash flows, which, in turn, could affect our ability to make payments on our debt or to make further investments in our businesses.

Cyclicality and volatility in supply and demand in the petrochemical industry may affect our prices and may negatively impact our operating margins and cash flows and cause us to incur losses. For example, if industry margins in the petrochemical industry were to return to their 2001 or fourth quarter of 2008 levels or decline more significantly than they have in the past, then this may result in a material adverse effect on our business, results of operations and cash flow. Any cyclical downturn may affect our prices and may negatively impact our operating margins and cash flows and cause us to incur losses. Furthermore, increased volatility in industry margins could have a significant impact on our short-term results. In such cases, we would have to absorb any losses or borrow additional funds. If we experience significant margin volatility or if we incur losses over a prolonged period and are unable to obtain additional funds, our liquidity could be materially adversely affected and our ability to make debt payments could be impaired.

The relationship between supply and demand in the petrochemical industry in general, and in our various petrochemical segments historically, has been highly cyclical. This is primarily because product supply is driven by alternating periods of substantial capacity additions and periods in which no or limited capacity is added. Historically, the markets for some of our products have tended to follow trends in economic growth and have experienced alternating periods of constrained supply, causing prices and margins to increase, followed by periods of capacity additions, resulting in oversupply and declining prices and margins. In response, companies typically reduce capacity or limit further capacity additions, eventually causing the market to be relatively undersupplied. Any slowdown in growth for any reason could have a disproportionately negative effect on industry margins for our petrochemical products. For a discussion of the current market environment, see “Business—Overview—Key Factors Affecting Our Results of Operation”.

Historically, margins in the petrochemical industry have been volatile due to a number of factors, most of which are beyond our control. These factors include:

- short-term utilization rate fluctuations due to planned and unplanned plant outages;
- political and economic conditions, which drive rapid changes in prices for our key feedstocks, including the price of crude oil, gas and naphtha;
- customers’ inventory management policies; and
- exchange rate fluctuations.

In addition, we and other petrochemical companies with large asset bases in Europe face pressures due to the fact that many of our key customers in Europe are subject to competition with low-cost producers in Asia. If our European customers are unable to successfully compete with Asian manufacturers, they could reduce their volume of purchases, including from us, or cease making such purchases altogether. To a lesser extent we are also exposed to the risk of our customers in North America being unable to compete in the global marketplace. Each of these risks could materially adversely affect our business, results of operations and financial condition.

Raw materials and suppliers—If we are unable to pass on increases in raw material prices, or to retain or replace our key suppliers, our results of operations may be negatively affected.

Our margins are largely a function of the relationship between the prices that we are able to charge for our products and the costs of the feedstocks we require to make these products. The prices for a large portion of our raw materials are cyclical. Prices fell significantly at the end of 2008, before gradually increasing from 2009 to 2011. Prices remained broadly stable during 2012 to the second half of 2014, after which the crude oil and product prices declined significantly. After a brief rise in prices in the first half of 2015, prices continued to decline in the second half of the year. Prices rose during 2016 and continued to rise during 2017 and most of 2018, before falling again towards the end of 2018. Prices again rose in 2019, but have begun to fall significantly in early 2020 on the back of global uncertainties due to the impact of COVID-19 and OPEC’s failure to agree production cuts.

While we attempt to match raw material price increases with corresponding product price increases, our ability to pass on increases in the cost of raw materials to our customers is, to a large extent, dependent upon our contractual arrangements and market conditions. There may be periods of time during which we are not able to recover increases in the cost of raw materials due to our contractual arrangements or to weakness in demand for, or oversupply of, our products. Specifically, timing differences in pricing between raw material prices, which may change daily, and product prices, which in many cases are negotiated only monthly or less often, sometimes with an additional lag in effective dates for increases, have had and may continue to have a negative effect on profitability. Even in periods during which raw material prices decline, we may suffer decreasing profits if raw material price reductions occur at a slower rate than decreases in the selling prices of our products. In addition, when raw material costs decrease, customers may seek relief in the form of lower sales prices. Furthermore, some of our customers take advantage of fluctuating prices by building inventories when they expect product prices to increase and reducing inventories when they expect product prices to decrease.

Further, volatility in costs and pricing can result in commercial disputes with customers and suppliers with respect to interpretations of complex contractual arrangements. Significant adverse resolution of any such disputes could also reduce our profitability.

We obtain a significant portion of our raw materials from selected key suppliers. If any of these suppliers is unable to meet its obligations under present supply agreements, we may be forced to pay higher prices to obtain the necessary raw materials and we may not be able to increase prices for our finished products. Therefore, volatility in raw material prices or interruptions in supply could place increased pressure on our margins and reduce our cash flow, which could impair our ability to make debt payments or make further investments in our business.

If we fail to maintain our relationships with our current suppliers, our suppliers offer pricing and other terms that are not satisfactory to us or a supplier fails to supply raw materials that meet our quality, quantity and cost requirements, we may be unable to fill our customers' orders on a timely and cost-effective basis or in the required quantities, which could result in order cancellations, decreased revenues or loss of market share and damage to our reputation.

Global economy—Our industry is affected by global economic factors including risks associated with a recession and our customers' access to credit.

We face risks attendant to changes in consumer demand for goods that incorporate our products, economic environments, changes in interest rates and instability in securities markets around the world, among other factors. In particular, a worsening economic climate can result in decreased industrial output and decreased consumer demand for products including automobiles, consumer goods and building materials, all of which incorporate our products. Adverse economic conditions can affect consumer and business spending generally, which would result in decreased demand for goods that incorporate our products and have an adverse effect on our results of operations.

Our financial results are substantially dependent upon the overall economic conditions in the United States, the European Union and Asia. An extended recession in any of these locations or globally—or public perceptions that result in declining economic conditions—could substantially decrease the demand for our products and adversely affect our business. For example, as a result of an economic downturn, in 2008 and 2009, we experienced decreased demand for many of our products. Moreover, many of our customers rely on access to credit to adequately fund their operations. The inability of our customers to access credit facilities may adversely affect our business by reducing our sales, increasing our exposure to accounts receivable bad debts and reducing our profitability.

Currency fluctuations—We are exposed to currency fluctuation risks in several countries that could adversely affect our profitability.

Although we report our results in euro, we conduct a significant portion of our business in countries that use currencies other than the euro, and we are subject to risks associated with currency fluctuations.

Our results of operations may be affected by both the transaction effects and the translation effects of foreign currency exchange rate fluctuations. We are exposed to transaction effects when one of our subsidiaries incurs costs or earns revenue in a currency different from its functional currency. Fluctuations in exchange rates may also affect the relative competitive position of our manufacturing facilities, as well as our ability to market our products successfully in other markets. We are exposed to currency fluctuation when we convert currencies

that we may receive for our products into currencies required to pay our debt, or into currencies in which we purchase raw materials, meet our fixed costs or pay for services, which could result in a gain or loss depending on fluctuations in exchange rates. In particular, a large proportion of our manufacturing costs and our selling, general and administrative expenses are incurred in currencies other than the euro, principally the U.S. dollar and the British pound, reflecting the location of our sites and corporate and business support centers. At the same time, although many of our sales are invoiced in currencies other than the euro, our consolidated revenues are reported in euro. Therefore, our financial results in any given period are materially affected by fluctuations in the value of the euro relative to the U.S. dollar, British pound and other relevant currencies. If the value of the euro declines against currencies in which our obligations are denominated or increases against currencies in which our revenues are denominated, our results of operations and financial condition could be materially affected.

This could include the possibility of an increase in the amount of our U.S. dollar-denominated indebtedness when converted into euro, as was the case in 2014 and 2015 when the value of the euro relative to the U.S. dollar declined significantly and a decrease in the amount of our U.S. dollar-denominated revenue when converted to euro, as was the case in 2018, as compared to 2017, when the value of the U.S. dollar relative to the euro decreased before increasing again in 2019 as compared to 2018.

International operations—We are exposed to risks related to conducting operations in several different countries.

We currently have manufacturing facilities located in the United Kingdom, the United States, Germany, Belgium, Norway and Canada. Notwithstanding the benefits of geographic diversification, our business is subject to risks related to the differing legal, political, social and regulatory requirements and economic conditions of many jurisdictions. Risks inherent in international operations include the following:

- general economic, social or political conditions in the countries in which we operate could have an adverse effect on our earnings from operations in those countries;
- compliance with a variety of laws and regulations in various jurisdictions may be burdensome;
- unexpected or adverse changes in laws or regulatory requirements in various jurisdictions may occur;
- the imposition of withholding taxes or other taxes or royalties on our income, or the adoption of other restrictions on foreign trade or investment, including currency exchange controls;
- adverse changes in export duties, quotas and tariffs and difficulties in obtaining export licenses;
- intellectual property rights may be more difficult to enforce;
- transportation and other shipping costs may increase;
- staffing difficulties, national or regional labor strikes or other labor disputes;
- the imposition of any price controls; and
- difficulties in enforcing agreements and collecting receivables.

Competition—We face significant competition in our industries, whether through efforts of new or current competitors or through consolidation of existing customers, which may adversely affect our competitive position, sales and overall operations.

The markets for most of our products are highly competitive. We are exposed to the competitive characteristics of several different geographic markets and industries. Competition in most of our industries is based primarily on price and, to a lesser extent, on product performance, product quality, product deliverability and customer service. Our principal competitors vary from business to business and range from large global petrochemical companies to numerous smaller regional companies. Some of our competitors are larger and more vertically integrated than we are and therefore may be able to manufacture products more economically than we can. In addition, some of our competitors have greater financial, technical, research and technology and marketing resources than we do. Furthermore, some of our competitors are fully or partially state-owned and

could have broader goals than maximizing profits, such as investing in the economies of their respective countries and providing local employment and therefore may continue to provide capacity and products even at unprofitable price points creating downward pricing pressure on our products. As the markets for our products expand, we expect that existing competitors may commit more resources to the markets in which we operate, further enhancing competition. All of the above could hinder our ability to compete effectively in the markets in which we operate in the future and our competitive position and results of operations may suffer as a result. For example, in the petrochemical industry in Europe, where the majority of our petrochemical assets are concentrated, and, to a lesser extent, in North America, we face competitive pressures from companies with facilities in the Middle East, which enjoy substantial cost advantages due to access to low-cost gas feedstock available in this region. In addition, our export business in Europe faces competitive pressures from export businesses in North America (including our own North American operations) due to the abundance and use of low-cost ethane in North America. These cost advantages are particularly significant when oil prices are high, as has sometimes been the case in recent years. The competitive pressure we experience could be exacerbated if the Chinese economy fails to grow as expected, in which case more of the product manufactured in the Middle East to meet the growth expected in China could be redirected to Europe and North America, potentially resulting in greater supply to these markets and corresponding downward pricing pressure.

In addition, a number of our customers are participants in industries that are undergoing consolidation. We could lose these customers to competitors if they are acquired by, or consolidate with, other companies that have relationships with our competitors.

Customers—We are subject to the risk of loss resulting from nonpayment or nonperformance by our customers.

Our credit procedures and policies may not be adequate to minimize or mitigate customer credit risk. Our customers may experience financial difficulties, including bankruptcies, restructurings and liquidations. These and other financial problems that may be experienced by our customers, as well as potential financial weakness in our industry, may increase our risk in extending trade credit to customers. A significant adverse change in a customer relationship or in a customer's financial position could cause us to limit or discontinue business with that customer, require us to assume more credit risk relating to that customer's receivables or limit our ability to collect accounts receivable from that customer, all of which could have a material adverse effect on our business, results of operations, financial condition and liquidity.

Refining Divestiture—We are dependent on contractual arrangements with the Refining and Entrepreneurial JVs for naphtha and if we are unable to obtain this feedstock from these entities, our businesses could be adversely affected.

On July 1, 2011, we disposed of the Refining Business and the Entrepreneurial (Refining) Business to the Refining and Entrepreneurial JVs. In addition, we disposed of the Infrastructure Entity to the Refining Business JV (50.0%) and INEOS Investments (50.0%). See "Business—Chemical Intermediates—The Refining Divestiture" for a more detailed discussion of the Refining Divestiture.

We have entered into several contractual arrangements with the Refining and Entrepreneurial JVs to allow the INEOS Group to continue to receive the requisite feedstocks and access to entrepreneurial activities and utilities services. However, there is no guarantee that (i) the Refining and Entrepreneurial JVs will deliver the requisite feedstocks or access to entrepreneurial activities or utilities services, set forth in the contractual arrangements, (ii) we will be able to find other suppliers to cover any shortfalls in the feedstock supplies, entrepreneurial activities or utilities services that we require and (iii) any agreements we enter into with other suppliers will be on terms as favorable as those under the agreements that have been executed with the Refining and Entrepreneurial JVs. See "Business—Chemical Intermediates—The Refining Divestiture."

To ensure that the companies in the INEOS Group retain access to the naphtha feedstock provided by the Refining and Entrepreneurial JVs, we have entered into a long-term agreement with the Refining and Entrepreneurial JVs for the continued provision of the naphtha supply that we have historically received from the Refining Business, on substantially similar commercial terms as those that governed the inter-INEOS Group transfer for the supply of naphtha previously.

Acquisition of DEA UK, certain subsidiaries of Fairfield Energy and DONG Energy A/S Oil & Gas business by INEOS Upstream Limited—We face a risk of loss if INEOS Upstream Holdings Limited is unable to repay the loans extended to the related party.

INEOS Upstream Limited has acquired natural gas assets in the North Sea from a U.K. subsidiary of DEA Deutsche Erdoel AG, which is part of the LetterOne Group and from Fairfield Energy (collectively, the “**2015 Upstream Acquisitions**”) by way of acquiring certain of its subsidiaries. INEOS Upstream Limited is a wholly-owned, oil and gas subsidiary of INEOS Limited, thereby making it an affiliate of ours. In connection with the 2015 Upstream Acquisitions, the Group advanced a loan of \$623.7 million to INEOS Upstream Limited, the proceeds of which have been on-lent to certain of its subsidiaries. Following a corporate reorganization, this loan has been novated to INEOS Upstream Holdings Limited. The loan is unsecured and matures in October 2020.

On September 29, 2017, INEOS Upstream Limited acquired further natural gas assets in the North Sea through its acquisition of the entire oil and gas business of DONG Energy A/S (the “**DONG Acquisition**”). In connection with the DONG Acquisition, the Group advanced a loan of \$376.2 million to INEOS Upstream Limited, the proceeds of which were on-lent to certain of its subsidiaries. Following a corporate reorganization, this loan has been novated to INEOS Upstream Holdings Limited. The loan is unsecured and matures in June 2022.

As at December 31, 2019, the total aggregate amount outstanding on the 2015 Upstream Acquisition loan and the Dong Acquisition loan was \$617.1 million (€550.8 million).

In the event that INEOS Upstream Limited is unable to repay the 2015 Upstream Acquisitions loan or the DONG Acquisition loan, the Group will suffer losses as a result.

Inability to maximize utilization of assets—We may be adversely affected if we are unable to implement our strategy to maximize utilization of assets.

Our results of operations are materially influenced by the degree to which we utilize our assets in order to achieve maximum production volumes. We cannot guarantee that we will be able to implement our strategy of maximizing utilization of assets in accordance with our plans or at all. For example, the number and length of turnarounds (scheduled outages of a unit in order to perform necessary inspections, tests to comply with industry regulations and any maintenance activities that may be necessary) and unplanned outages have had, and may in the future have, an impact on our operating results, even if such outages are covered by insurance.

Joint ventures—Several of our petrochemical facilities are owned and operated in joint ventures with third parties. We do not control these joint ventures, and actions taken by our joint venture partners in respect of these joint ventures could materially adversely affect our business.

Several of our petrochemical facilities are owned and operated in whole or part by joint ventures with one or more third parties. These facilities include Cedar Bayou in Texas, which is operated by Chevron Phillips Chemical Company LLC (“**Chevron Phillips**”) in a 50/50 joint venture with Chevron Phillips. We also entered into a joint venture with Sasol Limited named Ineos Gemini HDPE Co LLC to construct a facility to manufacture high-density polyethylene (“**HDPE**”), which became operational in the fourth quarter of 2017. While we have a certain amount of influence over each of these joint ventures, we do not control them and are therefore dependent on our respective joint venture partners to cooperate with us in making decisions regarding the relevant joint venture. Moreover, the day-to-day operation of the relevant facilities is the responsibility of the management team of the joint venture or our joint venture partner. Therefore, our ability to influence these operations on a day to day basis is limited and we may be unable to prevent actions that we believe are not in the best interests of our joint ventures or our Group as a whole. Any such actions could materially adversely affect our business, results of operations and financial condition.

Climate change—Existing and proposed regulations to address climate change by limiting greenhouse gas emissions may cause us to incur significant additional operating and capital expenses.

Our operations result in emissions of greenhouse gases (“**GHGs**”), such as carbon dioxide and methane. Growing concern about the sources and impacts of global climate change has led to a number of regional, national and supranational legislative and administrative measures, both proposed and enacted, to monitor, regulate and limit carbon dioxide and other GHG emissions. As a result, our operations, as well as those of our customers, are subject to stringent regulations relating to carbon dioxide and other GHG emissions,

compliance with which may require installation of additional pollution control equipment, purchase of emissions allowances or credits or other operational changes which could increase our production costs or, to the extent incurred by our customers, negatively affect our profitability or demand for our products.

At the international level, many nations have agreed to limit emissions of GHGs pursuant to the United Nations Framework Convention on Climate Change, also known as the “Kyoto Protocol.” Methane, a primary component of natural gas, and carbon dioxide, a byproduct of the burning of oil, natural gas, and refined petroleum products, are GHGs addressed by the Kyoto Protocol. Although the United States is not participating in the Kyoto Protocol at this time, a number of EU nations are signatories. Furthermore, in December 2009, 27 nations, including the United States and China, signed the Copenhagen Accord, which includes a non-binding commitment to reduce GHG emissions. As a result of commitments made at the UN climate conference in Durban, South Africa in December 2011, certain members of the international community negotiated a treaty at the December 2015 Conference of Parties in Paris. This Paris Agreement, which entered into force in November 2016, will require developed countries to set targets for emissions reductions once the Agreement is adopted by those individual countries within their respective national or federal law. Although the United States has announced its intention to withdraw from the Paris Agreement, additional measures requiring reductions in GHG emissions may be implemented by other countries in which we operate, including, for example, the EU’s proposal to increase its carbon reduction commitment by 2020 from a 20% to a 30% reduction.

In the EU, our emissions are regulated under the European Union Emissions Trading System (“**EU ETS**”), an EU-wide trading system for industrial GHG emissions. The EU ETS is expected to continue to become progressively more stringent over time, including by reducing the number of allowances to emit GHGs, as well as those that EU member states will allocate without charge to industrial facilities. Such measures could result in increased costs for us to: (i) operate and maintain our facilities; (ii) install new emission controls; (iii) purchase or otherwise obtain allowances to emit GHGs; and (iv) administer and manage our GHG emissions program.

In the United States, we are required to monitor and report to the U.S. Environmental Protection Agency (“**EPA**”) annual GHG emissions from certain of our U.S. facilities. In addition, EPA has promulgated regulations under the Clean Air Act (“**CAA**”) which subject the GHG emissions of certain newly constructed or modified facilities to pre-construction and operating permitting requirements. Pursuant to these requirements, newly constructed or modified facilities with the potential to emit certain quantities of GHGs are required to implement “best available control technology,” which can include carbon efficiency standards, GHG emission concentration limits, specific technology requirements or other measures. Significant uncertainty exists as to how newer or stricter GHG regulations will in the future impact large stationary sources, such as our facilities in the United States, and what costs or operational changes these regulations may require.

In addition, EPA has issued final regulations under the CAA that establish air emission controls for oil and natural gas production and natural gas processing operations, including New Source Performance Standards to address emissions of sulfur dioxide and volatile organic compounds, or VOCs. EPA also issued a request for data and information relating to a separate set of emission standards to address hazardous air pollutants frequently associated with oil and natural gas production and processing activities in 2016, but withdrew such request in March 2017 under the Trump administration. Significant uncertainty exists as to future regulation of these activities under the CAA. We continue to monitor the situation closely.

In addition, the U.S. Congress has from time to time considered adopting legislation to reduce emissions of GHGs and almost one-half of U.S. states have already taken legal measures to reduce emissions of GHGs primarily through the planned development of GHG emission inventories and or/regional GHG gas cap-and-trade programs. Although the U.S. Congress has not adopted such legislation at this time, it, or additional U.S. states, may do so in the future, along with other countries (in addition to the EU), and we cannot yet predict the form such regulation will take (such as a cap-and-trade program, technology mandate, emissions tax or other regulatory mechanism) or, consequently, estimate any costs that we may be required to incur in respect of such requirements, for example, to install emissions control equipment, purchase emissions allowances, administer and manage our GHG emissions program, or address other regulatory obligations. Such requirements could also adversely affect our energy supply, or the costs (and types) of raw materials we use for fuel. For example, in August 2015, EPA released a final version of the Clean Power Plan (“**CCP**”), which seeks to reduce GHG emissions from power plants. On June 19, 2019, the EPA issued the Affordable Clean Energy (“**ACE**”) rule to replace the CPP. The ACE rule established emissions guidelines for states to use in developing plans to focus on heat rate improvements to define the “best system of emission reductions” and with specific standards of performance. Plans are required to be submitted by individual states by 2020 to address greenhouse gas emissions from existing coal-fired power plants. Requirements arising from these, or different, regulations

controlling or limiting GHG emissions could have a material adverse impact on our business, financial condition or results of operations, including by reducing demand for our products.

Environmental matters—We will have ongoing costs and may have substantial obligations and liabilities arising from health, safety, security and environmental (“HSSE”) laws, regulations and permits applicable to our operations.

Our businesses are subject to a wide range of HSSE laws and regulations in all of the jurisdictions in which we operate. These requirements govern our facilities and our operations, including the manufacture, storage, handling, treatment, transportation and disposal of hazardous substances and wastes, wastewater discharges, air emissions (including GHG emissions), noise emissions, operation and closure of landfills, human health and safety, process safety and risk management and the clean-up of contaminated sites. Many of our operations require permits and controls to monitor or prevent pollution, and these permits are subject to modification, renewal and revocation by issuing authorities. We have incurred, and will continue to incur, substantial ongoing capital and operating expenditures to ensure compliance with current and future HSSE laws, regulations and permits or the enforcement of such requirements.

We expect that our operations will be subject in the future to new and increasingly stringent HSSE laws, regulations and permits and that substantial costs will be incurred by us to ensure continued compliance. We anticipate that these laws, regulations and permits will continue to require us to incur substantial costs and impose additional operating and capital obligations. For example, in November 2017, the U.K. adopted a directive governing the quality of liquid effluent discharged to controlled waters, which may cause us to incur capital expenditures to comply with applicable requirements by 2021. If we do not predict accurately the amount or timing of costs of any future compliance, remediation requirements or private claims, our environmental provisions may be inadequate and the related impact on our business, financial condition or results of operations in any period in which such unanticipated costs need to be incurred could be material. Given the nature of our business, violations of HSSE requirements, whether currently alleged or arising in the future, may result in substantial fines or penalties, the imposition of other civil or criminal sanctions, cleanup costs, claims for personal injury or property damages, the installation of costly pollution control equipment, or restrictions on, or the suspension of, our operating permits or activities.

At certain sites where we operate, regulators have alleged, or we have otherwise identified potential or actual noncompliance with HSSE laws and/or the permits which authorize operations at these sites. Some of these allegations or instances of noncompliance are ongoing, and substantial amounts may need to be spent to attain and/or maintain compliance. In addition, we have in the past paid, and in the future may pay, penalties to resolve such matters. Our businesses and facilities have experienced, and in certain cases, are in the process of investigating or remediating, hazardous materials in the soil and groundwater at locations where we operate and/or adjacent properties and/or natural resources at public and private lands not owned by us.

Many of our sites have an extended history of industrial chemical processing, storage and related activities, and may currently be subject to engineering or institutional controls or restrictions or may become subject to such controls or restrictions in the future. We are currently, and from time to time have been or may be, required to investigate and remediate releases of hazardous materials or contamination at or migrating from certain of these sites, as well as properties we formerly owned, leased or operated. We are, and in the future may be, responsible for investigating and cleaning up contamination at off-site locations where we or our predecessors disposed of or arranged for the disposal or treatment of hazardous wastes. Under some environmental laws, including the U.S. Comprehensive Environmental Response, Compensation, and Liability Act, commonly referred to as “Superfund,” liability can be imposed retroactively, without regard to fault or knowledge, and on a joint and several basis. In addition, we also could be subject to claims by government authorities, individuals and other third parties seeking damages for alleged personal injury or property or natural resource damages resulting from environmental contamination or hazardous exposure caused by our operations, facilities or products. The discovery of previously unknown contamination, or the imposition of new obligations to investigate or remediate contamination at our facilities, could result in substantial unanticipated costs. We could be required to establish or substantially increase financial reserves for such obligations or liabilities and, if we fail to accurately predict the amount or timing of such costs, the related impact on our business, financial condition or results of operations in any period in which such unanticipated costs need to be incurred could be material. In addition, HSSE laws and regulations can impose various financial responsibility requirements on us, and pursuant to these requirements we may be required to post bonds, create trust funds or provide other assurances that we will be able to address contamination at our sites and comply with our decommissioning obligations once our facilities reach the end of their useful lives.

Our operations involve the intensive use of hazardous materials and we have been from time to time subject to claims made for damage to property or injury, including adverse health effects, to employees and other persons, resulting from our operations. Claims made in the future could have a material adverse effect on our reputation, business, financial condition or results of operations.

Our operations involve significant water usage, with annual industrial water costs of approximately €60 million in 2019. Changes to the environmental regulations and other factors, such as water shortages as a result of climate change, could increase the cost of water, which would in turn impact our operating and production costs.

Our financial results may be adversely affected if environmental liability arises for which we are not adequately indemnified, or from a disposal of assets or businesses for which we provided a seller's indemnification in respect thereof. Although we believe that the indemnities given by the selling parties from whom we have acquired assets or businesses will help defray the costs associated with pre-acquisition environmental liabilities, our financial results may still be adversely affected to the extent that:

- the sellers do not fulfill their respective indemnification obligations;
- we breach our obligations not to undertake certain activities that may aggravate existing conditions or to mitigate associated losses;
- we incur indemnification obligations for other environmental liabilities owed as part of certain disposals of assets or businesses; or
- we incur significant costs for pre-acquisition conditions that are not covered by the indemnities.

Potential hazards—Our operations are subject to hazards which could result in significant liability to us.

Our operations are subject to hazards associated with chemical manufacturing and the related use, storage, transportation and disposal of raw materials, products and wastes. These hazards include explosions, fires, severe weather (including but not limited to floods, hurricanes on the U.S. Gulf Coast or other adverse weather that may be increasing as a result of climate change) and natural disasters, accidents, mechanical failures, discharges or releases of toxic or hazardous substances or gases, transportation interruptions, human error, pipeline leaks and ruptures and terrorist activities. These hazards can cause personal injury and loss of life, severe damage to or destruction of property and equipment as well as environmental damages, and may result in suspension of operations and the imposition of civil and criminal liabilities, including penalties and damage awards. While we believe our insurance policies are in accordance with customary industry practices, such insurance may not cover all risks associated with the hazards of our business and is subject to limitations, including deductibles and maximum liabilities covered. We may incur losses beyond the limits, or outside the coverage, of our insurance policies, including liabilities for violations of environmental requirements and contamination. In addition, from time to time, various types of insurance for companies in our industries have not been available on commercially acceptable terms or, in some cases, have not been available at all. In the future, we may not be able to obtain coverage at current levels, and our premiums may increase significantly on coverage that we maintain. Costs associated with unanticipated events in excess of our insurance coverage could have a material adverse effect on our business, competitive or financial position or our ongoing results of operations. For additional related disclosure, see "Business—Health, Safety, Security and Environment."

Third parties—Our business and operations are subject to business interruption risks due to the actions of third parties, which could have a material adverse effect on our business, reputation, financial condition and results of operations.

Due to the nature of our business, we are at risk of business interruption due to the actions of third parties. For example, many of our vendors and subcontractors have operations that are also subject to HSSE risks associated with the use of hazardous materials. Any future HSSE-related incidents affecting our vendors and subcontractors may result in significant regulatory actions, fines and other penalties, including restrictions, prohibitions or sanctions on their operations which could impair their ability to perform their contracts with us or could otherwise subject us to claims or liability, all of which could have a material adverse effect on our business, reputation, financial condition and results of operations. In addition, if any facilities experience damage or temporary closures due to incidents or events, including protests, caused by third parties, our reputation, business and results of operations may be adversely affected.

Product stewardship regulation—Our business could be adversely affected by chemical safety regulation of our products and raw materials.

We use and manufacture hazardous chemicals that are subject to regulation by the EU and by many national, provincial and local governmental authorities in the countries in which we operate. In order to obtain regulatory approval of certain new products and production processes, we must, among other things, demonstrate to the relevant authorities that the product is safe for its intended uses and that we are capable of manufacturing the product in accordance with applicable regulations. The process of seeking approvals can be time-consuming and subject to unanticipated and significant delays. Approvals may not be granted to us on a timely basis, or at all. Any delay in obtaining, or any failure to obtain or maintain, these approvals would adversely affect our ability to introduce new products, to continue distributing existing products and to generate revenue from those products, which could have a material adverse effect on our business and prospects. New laws and regulations may be introduced in the future that could result in additional compliance costs, confiscation, recall or monetary fines, any of which could prevent or inhibit the development, distribution and sale of our products.

In addition, some of our products (including our raw materials) are subject to extensive environmental and industrial hygiene regulations that require the registration and safety analysis of and, in some cases, impose restrictions on, their component substances. For example, in connection with the EU's Registration, Evaluation and Authorization of Chemicals ("**REACH**") Regulation or the EU's Classification, Labelling and Packaging ("**CLP**") Regulation, any key raw material, chemical or substance, including some of our products, could be classified as having a toxicological, health-related or otherwise adverse or relevant effect, including impacts on the environment, on users of our products, or workers handling these products. In the event of such a classification, those key raw materials, chemicals, substances and/or products could be banned or restricted for certain uses. We manufacture, process, or use a number of substances classified as substances of very high concern under REACH, and the continued use of these substances may require authorization from the European Chemicals Agency ("**ECHA**"). If we cannot obtain authorization, we may need to discontinue use of such substances.

In June 2016, amendments to the U.S. Toxic Substances Control Act ("**TSCA**") became law, and it is possible that they could result in risk screening by EPA of substances we produce or use, and this risk screening could lead to new or more stringent regulatory obligations and/or restrictions, including, potentially, prohibitions on manufacture and sale of certain substances. On December 19, 2016, EPA published a list of ten chemical substances that are the subject of EPA's initial chemical risk evaluations, as required by TSCA. This list includes multiple chemicals we manufacture, including carbon tetrachloride and methylene chloride. In order to prioritize additional chemicals for risk evaluations, in 2019, EPA designated 20 chemical substances as high-priority and 20 chemical substances as low-priority. These designations include 1,3-butadiene that we manufacture.

In Ontario, Canada, the Toxics Reduction Act requires reduction in the use of toxic substances, including certain raw materials from which our products are synthesized. Among other things, this statute requires tracking, publication of toxic substance reduction plans and reporting. Similar regulations are being considered in other jurisdictions, including the United States, which could result in additional requirements, including notification, testing, labelling and record-keeping obligations, on our operations.

We are further subject to emerging laws and regulations governing workplace exposure to certain chemicals. For example, benzene has been identified as a genotoxic carcinogen. ECHA's Committee for Risk Assessment ("**RAC**") recently proposed reducing the occupational exposure limit ("**OEL**") for benzene to .05 ppm as the maximum allowable concentration in air at workplaces in the EU. RAC also proposed a new OEL of 0.45 ppm for acrylonitrile, a monomer used in many plastics. Because we produce benzene and acrylonitrile, we would become subject to these OELs, if enacted. As another example, butadiene has been classified as a known human carcinogen by the International Agency for Research on Cancer, the U.S. National Toxicology Program and EPA. The U.S. Occupational Safety and Health Administration currently limits the permissible employee exposure to butadiene. If studies on the health effects of butadiene result in additional regulations in the United States or new regulations in Europe that further restrict or prohibit the use of, and exposure to, butadiene, we could be required to change our operations, which could affect the quality of our products and increase our costs.

The regulation or reclassification of any of our raw materials or products could result in a ban on its import, purchase or sale, adversely affect the availability or marketability of our products, or require us to incur

increased costs to comply with notification, labeling or handling requirements, each of which could result in a material adverse effect on our business, financial condition and results of operations.

Litigation—We are subject to certain risks related to litigation filed by or against us, and adverse results may harm our business.

We cannot predict with certainty the cost of defense, the cost of prosecution or the ultimate outcome of litigation and other proceedings filed by or against us, including remedies or damage awards, and adverse results in any litigation and other proceedings may materially harm our business. Litigation and other proceedings may include, but are not limited to, actions relating to intellectual property, commercial arrangements, environmental, health and safety, joint venture agreements, labor and employment or other harms resulting from the actions of individuals or entities outside of our control. In the case of intellectual property litigation and proceedings, adverse outcomes could include the cancellation, invalidation or other loss of material intellectual property rights used in our business and injunctions prohibiting our use of business processes or technology that are subject to third-party patents or other third-party intellectual property rights. Litigation based on environmental matters or human exposure to hazardous substances in the workplace or from our products could result in significant liability for us. Adverse outcomes could have a material adverse effect on our business.

Product liability—We may be liable for damages based on product liability claims.

The sale of our products involves the risk of product liability claims arising out of the use of, or exposure to, our products or the chemicals in them. While most of our products have some hazardous properties, some of them, such as acrylonitrile, require specialized handling procedures due to their acute and chronic toxicity. Furthermore, our polymer products have widespread end uses in a variety of consumer industries, including food packaging and medical applications. A successful product liability claim or series of claims against us in excess of our insurance coverage for payments for which we are not otherwise indemnified or have not otherwise provided could have a material adverse effect on our business, financial condition or results of operations and cash flows. In particular, we could be required to increase our debt or divert resources from other investments in our business in order to discharge any such claims.

In addition, we have licensed our polyethylene, polypropylene, polystyrene, polyvinylchloride, vinyl chloride monomer, ethylene dichloride and acrylonitrile technologies to third parties. Generally, our licensing agreements provide that any liability arising from the implementation of such technology is retained by us during the first 18 months of the agreements. As a result, we are liable for any damages arising from the implementation by our licensees of our technology during this period.

Key personnel—Our success depends on the continued service of certain key personnel.

Our success depends in significant part upon the continued service of our shareholders, directors and senior management, including James Ratcliffe, Andrew Currie and John Reece and the executive officers at each of our business divisions. In addition, our future growth and success also depends on our ability to attract, train, retain and motivate skilled managerial, sales, administration, operating and technical personnel. We generally do not have employment agreements with, and we do not maintain any “key man” life insurance for, any member of our senior management. The loss of one or more of our key management or operating personnel, or the failure to attract and retain additional key personnel, could have a material adverse impact on our business, financial condition and results of operations.

Employee relations—We depend on good relations with our workforce, and any significant disruption could adversely affect us.

As of December 31, 2019, we employed approximately 7,500 people (measured as full-time equivalents (“FTEs”)) in our operations around the world, not including employees of our joint ventures. The majority of our employees are unionized. In addition, a majority of our employees reside in countries in which employment laws provide greater bargaining or other rights to employees than the laws of the United States. These employment rights may require us to expend greater time and expenses in altering or amending employees’ terms of employment or making staff reductions. For example, most of our employees in Europe are represented by works councils which generally must approve changes in conditions of employment, including salaries and benefits. Further, a labor disturbance or work stoppage at any of our facilities as a result of any changes to our employment terms and conditions or for any other reason could have a material adverse effect on that facility’s operations and, potentially, on our business, results of operations and financial condition.

Intellectual property—The failure of our patents, trademarks and confidentiality agreements to protect our intellectual property could adversely affect our business.

Proprietary protection of our processes, apparatuses and other technology is important to our business, including our manufacturing activities. Our actions to protect our proprietary rights may be insufficient to prevent others from developing similar products to ours. In addition, the laws of many foreign countries do not protect our intellectual property rights to the same extent as the laws of the United States and the United Kingdom. Furthermore, any pending patent application filed by us may not result in an issued patent, or if patents are issued to us, such patents may not provide meaningful protection against competitors or against competitive technologies. You should be aware that the expiration of a patent or the failure of our patents to protect our formulations, processes, apparatuses, technology or proprietary know-how could result in intense competition, with consequent erosion of profit margins. In addition, our competitors and any other third parties may obtain patents that restrict or preclude our ability to lawfully manufacture and market our products in a competitive manner, which could materially adversely affect our business, results of operations and financial condition.

Some of our patents and patent applications are jointly owned with third parties. In many countries, both owners have full rights under a jointly-owned patent. In the absence of a specific agreement, such third parties may use our jointly-owned patents to compete with us or grant a license to our competitors. In addition, co-owners may not cooperate with us to enforce or to defend a jointly-owned patent where necessary to protect our rights.

We also rely upon unpatented proprietary know-how and continuing technological innovation and other trade secrets to develop and maintain our competitive position. While it is our policy to enter into confidentiality agreements with our employees and third parties to protect our intellectual property, there can be no assurances that:

- our confidentiality agreements will not be breached;
- such agreements will provide meaningful protection for our trade secrets or proprietary know-how; or
- adequate remedies will be available in the event of an unauthorized use or disclosure of these trade secrets and know-how.

In addition, there can be no assurances that others will not obtain knowledge of these trade secrets through independent development or other access by legal means.

In the past we have received communications asserting that our products or their applications infringe on a third party's proprietary rights. Currently, there is no material pending litigation against us regarding any intellectual property claim but we cannot assure you that there will not be future claims. Such claims, regardless of merit, could subject us to costly litigation and divert our technical and management personnel from their regular responsibilities. Furthermore, if such claims are adversely determined against us, we could be forced to suspend the manufacture of products using the contested intellectual property and our business, financial condition and operating results could be adversely affected if any such products are material to our business.

We may also initiate lawsuits to defend the ownership of our inventions and our intellectual property. Like defending against litigation, initiating litigation relating to intellectual property rights is costly and may divert technical and management personnel from their normal responsibilities. Furthermore, we may not prevail in any such litigation or proceeding. A determination in an intellectual property litigation or proceeding that results in a finding of a non-infringement by others to our intellectual property or an invalidation of our patents may result in the use by competitors of our technologies or processes and sale by competitors of products that resemble our products, which may adversely affect our ability to compete as well as create increased supply and corresponding downward pricing pressure.

We are subject to cyber security risks. A cyber incident could occur and result in information theft, data corruption, operational disruption and/or financial loss.

Our industry has become increasingly dependent on digital technologies to conduct certain processing activities. For example, we depend on digital technologies to perform many of our services and to process and record financial and operating data. At the same time, cyber incidents, including deliberate attacks, have

increased. Our technologies, systems and networks, and those of our vendors, suppliers and other business partners, may become the target of cyberattacks or information security breaches that could result in the unauthorized release, gathering, monitoring, misuse, loss or destruction of proprietary and other information, or other disruption of business operations. In addition, certain cyber incidents, such as surveillance, may remain undetected for an extended period. Our systems for protecting against cyber security risks may not be sufficient. As cyber incidents continue to evolve, we will likely be required to expend additional resources to continue to modify or enhance our protective measures or to investigate and remediate any vulnerability to cyber incidents. Further, the General Data Protection Regulation (Regulation (EU) 2016/679), came into effect in Europe in May 2018, which has created a range of new compliance obligations, and increased financial penalties for non-compliance significantly.

Internal controls—If we fail to maintain an effective system of internal controls over financial reporting, we may not be able to accurately report our financial results or prevent fraud.

We have designed and continue to design our internal controls with the objective of providing reasonable assurance that (1) our transactions are properly authorized; (2) our assets are safeguarded against unauthorized or improper use; and (3) our transactions are properly recorded and reported, all to permit the preparation of our consolidated financial information in conformity with applicable accounting principles. We design our internal controls through the use of internal resources, external consultants and, as the case may be, with joint venture partners.

Any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system are met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events. Because of these and other inherent limitations of control systems, there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions, regardless of how remote. Any failure to maintain adequate internal controls or to be able to produce accurate consolidated financial information on a timely basis could increase our operating costs and materially impair our ability to operate our business.

Feedstock supply from BP—BP provides us with a substantial proportion of our feedstock requirements, and several of our sites depend entirely on BP for their supply of raw materials.

BP accounts for a substantial proportion of our petrochemical feedstock requirements. While the substantial majority of these feedstocks are secured by long-term contracts (as generally described in the section entitled “Business—Agreements with BP”), BP may terminate each of these agreements for cause or, after the initial terms, notice of one to three years. If we lose BP as a supplier or if, as a result of operational problems at any of its facilities, BP is unable or unwilling to supply us with raw materials in the required quantities or at all, we could experience disruptions that could force us to shut down facilities. In addition, we could experience substantial delays in finding suitable replacement feedstocks on commercially viable terms. At sites that are deeply integrated with BP’s facilities and therefore depend entirely on BP for the supply of raw materials, we may be unable to find a suitable alternative supplier. If BP fails to supply us with raw materials at any of these sites, we may be forced to close the affected facilities, either temporarily or permanently. If any of these risks materialize, our business, results of operations and financial condition could be materially adversely affected.

Credit Support Deed—The credit support we may be required to provide under our Credit Support Deed with BP may be substantial.

In connection with the Innovene Acquisition, we initially entered into a series of arrangements with BP, including a number of commercial and transitional support agreements, among them, a credit support arrangement, which was replaced on January 5, 2017 by a new credit support agreement (the “Credit Support Deed”). See “Business—Agreements with BP—Credit Support—The Credit Support Deed.”

Under the Credit Support Deed, IHL and BP agreed to provide reciprocal credit support for trade obligations under certain agreements between such parties or their affiliates if the existing credit support provided under the underlying trading agreements is no longer satisfactory. Such additional credit support may take the form of an irrevocable standby letter of credit issued by a bank meeting certain credit rating requirements or a requirement for the buyer to make payment in advance for goods or services under the relevant trading agreement and must be provided at the request of the seller in the event that (i) the existing credit support ceases to be effective in a material respect, (ii) there has been a material deterioration in the nature and/or extent of the existing credit support or (iii) there has been a material increase in the seller’s exposure to the buyer under the relevant trading agreement which is not supported by the existing credit support.

Further, payment obligations of various members of the Group under the trading agreements between such parties are guaranteed by IGH.

The additional credit support required of INEOS under the Credit Support Deed could be substantial. Any failure to provide such credit support under the Credit Support Deed would constitute a default under the Credit Support Deed. The Credit Support Deed provides that in the event we fail to provide such credit support, BP may suspend performance of its obligations under the relevant trading agreement between us and BP and, if such default is not remedied within specific time period, BP may terminate the relevant trading agreements.

Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, and the Indentures—Our Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures impose significant operating and financial restrictions, which may prevent us from capitalizing on business opportunities and taking certain actions.

Our Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures impose significant operating and financial restrictions on us. These restrictions include limitations on our ability to:

- make investments and other restricted payments, including dividends;
- incur additional indebtedness;
- sell our assets or consolidate or merge with or into other companies;
- enter into joint ventures; and
- make capital expenditures.

Our Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures contain covenants that may adversely affect our ability to finance our future operations and capital needs and to pursue available business opportunities. A breach of any of these covenants could result in a default in respect of the related debt. If a default were to occur, the relevant holders or the relevant lenders (as applicable) of such debt could elect to declare the debt, together with accrued interest and other fees, immediately due and payable and, subject to certain limitations, proceed against any Collateral securing that debt. Refer to “Description of Certain Indebtedness” for further information.

Future acquisitions or developments—Any future acquisitions or developments may prove difficult for us to consummate.

We have a history of making acquisitions and in the future we may acquire companies or assets engaged in similar or complementary businesses to our own if we identify appropriate acquisition targets. In addition, we may organically grow our business, including by developing new facilities such as the planned ethane cracker and PDH (propane dehydrogenation) plant in Antwerp, Belgium. However, restrictions in the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures may limit or preclude our ability to make certain acquisitions or capital expenditures. Further, we may use debt financing for any permitted acquisitions or capital expenditures, which would increase our debt service requirements. In order to manage any acquisitions or development projects we successfully complete, we will need to expand and continue to improve our operational, financial and management information systems. If making acquisitions or integrating any acquired business or development projects divert too much management attention from the operations or our core businesses, this could adversely affect our financial condition and results of operations. Any acquisition or development project that we make could be subject to a number of risks, including, as applicable:

- problems with effective integration of operations;
- the inability to maintain key pre-acquisition business relationships;
- increased operating costs;
- costs related to achieving or maintaining compliance with laws, rules or regulations;

- the loss of key employees of the acquired company;
- exposure to unanticipated liabilities; and
- difficulties in realizing projected efficiencies, synergies and cost savings.

We cannot assure you that any acquisition or development project we consummate will ultimately provide the benefits we originally anticipate. Furthermore, we may not succeed in identifying attractive acquisition candidates or financing and completing potential acquisitions on favorable terms and development projects may experience delays and cost overruns.

Credit and capital market conditions—Adverse conditions in the credit and capital markets may limit or prevent our ability to borrow or raise capital.

While we believe we have facilities in place that should allow us to borrow or otherwise raise funds as needed, adverse conditions in the credit and financial markets could prevent us from obtaining financing, if the need arises. Our ability to invest in our businesses and refinance maturing debt obligations could require access to the credit and capital markets and sufficient bank credit lines to support cash requirements. If we are unable to access the credit and capital markets, we could experience a material adverse effect on our financial position or results of operations.

Pension plans—Significant changes in pension fund investment performance or assumptions relating to pension costs may adversely affect the valuation of pension obligations, the funded status of pension plans, and our pension cost.

Our funding policy for pension plans is to accumulate plan assets that, over the long run, will approximate the present value of projected benefit obligations. Our pension cost is materially affected by the discount rate used to measure pension obligations, the level of plan assets available to fund those obligations at the measurement date and the expected long-term rate of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets may result in corresponding increases and decreases in the valuation of plan assets, particularly equity securities, or in a change of the expected rate of return on plan assets. Any change in key actuarial assumptions, such as the discount rate, would impact the valuation of pension obligations, affecting the reported funded status of our pension plans as well as the net periodic pension cost in the following fiscal years. Any declines in the fair values of the pension plans' assets could require additional payments by us in order to maintain specified funding levels. Any decrease in interest rates will result in an increase of pension liabilities. Our pension plans are subject to legislative and regulatory requirements of applicable jurisdictions.

Market perceptions concerning the instability of the euro, the potential re-introduction of individual currencies within the eurozone, or the potential dissolution of the euro entirely, could have adverse consequences for us with respect to our outstanding debt obligations that are euro-denominated.

The eurozone continues to be heavily indebted, which has contributed to the instability of the financial markets. Financial markets may continue to be negatively impacted by concerns about a slowdown in growth in certain economies of the eurozone and uncertainties regarding the overall stability of the euro and the sustainability of the euro as a single currency given the diverse economic and political circumstances in individual member states. Governments and regulators have implemented austerity programs and other remedial measures to respond to these concerns around the economies and financial system of the eurozone, but the actual impact of such programs and measures are difficult to predict.

In the event that concerns around the economies and financial system of the eurozone and the stability and sustainability of the euro are not resolved, it is possible that one or more countries may default on their debt obligations and/or cease using the euro and re-establish their own national currency or that the eurozone may collapse. Should the euro dissolve entirely, the legal and contractual consequences for holders of euro denominated obligations and for parties subject to other contractual provisions referencing the euro such as supply contracts would be determined by laws in effect at such time.

The official exchange rate at which our euro-denominated debt instruments (including the Senior Secured Notes, the 2024 IGH Euro Notes, the Senior Secured Term Loans denominated in euro and the Schuldschein Loan) may be re-denominated may not accurately reflect their value in euro. These potential developments, or market perceptions concerning these and related issues, could adversely affect the value of our euro-denominated debt instruments and could have adverse consequences for us with respect to our outstanding debt obligations that are euro-denominated, and, as we have a substantial amount of debt denominated in euro, our financial condition may be materially affected.

Furthermore, a number of our debt instruments (including the Senior Secured Notes, the 2024 IGH Notes, the Senior Secured Term Loans and the Schuldschein Loan) contain covenants restricting our and our subsidiaries' corporate activities. See "Risks Relating to Our Capital Structure—Restrictive covenants in our debt instruments—We are subject to restrictive debt covenants that may limit our ability to finance our future operations and capital needs and to pursue business opportunities and activities. If we default under these covenants, we will not be able to meet our payment obligations." Certain of such covenants impose limitations based on euro amounts (e.g., the amount of additional indebtedness we or our subsidiaries may incur). As such, if the euro were to significantly decrease in value, the restrictions imposed by these covenants would become tighter, further restricting our ability to finance our operations and conduct our day to day business.

Referendum and United Kingdom withdrawal from the European Union—Our operations may be adversely affected by the potential withdrawal of the United Kingdom from the European Union

On June 23, 2016, the United Kingdom held an in or out referendum on the United Kingdom's membership within the EU, the result of which favored the exit of the United Kingdom from the European Union ("**Brexit**"). On January 31, 2020, Brexit became effective and the United Kingdom entered into a transition period from January 31, 2020 to December 31, 2020 during which the European Union will treat the United Kingdom as if it were still a member of the European Union (the "**Transition Period**"). While the United Kingdom and the European have agreed to a political declaration setting out a framework for the future relationship between the United Kingdom and the European Union after the Transition Period, the terms of this relationship are subject to ongoing negotiations and there can be no assurances that the United Kingdom and the European Union will formally agree on any such terms.

These developments, or the perception that any of them could occur, have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets, and could significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. In addition, Brexit has given rise to calls for certain regions within the United Kingdom to preserve their place in the European Union by separating from the United Kingdom, as well as for the governments of other European Union member states to consider withdrawal. Brexit and the uncertainty caused thereby may lead to a down-turn in the United Kingdom or other European economies and could lead to reduced access to European markets in general. The headquarters of our Group are in Europe and we maintain a significant presence in various European markets through subsidiaries operating in these countries and sales made to customers in Europe. In addition, to date, the United Kingdom has not secured trading arrangements with a number of the countries with which the European Union has in place trading agreements, which could result in higher tariffs for trading between the United Kingdom and these countries after the Transition Period. We also have a presence in the United Kingdom market.

Given the lack of precedent, it is unclear how the withdrawal of the United Kingdom from the European Union will affect the United Kingdom's access to the European Union single market and other important financial and trade relationships and how it will affect us after the Transition Period. The withdrawal could, among other outcomes, disrupt the free movement of goods, services, capital and people between the United Kingdom and the European Union, undermine bilateral cooperation in key policy areas and significantly disrupt trade in the United Kingdom and the European Union markets in which we operate. Although it is not possible to predict fully the effects of the withdrawal of the United Kingdom from the European Union after the Transition Period, the uncertainty before, during and after the period of negotiation could be destabilizing, have a negative economic impact and increase volatility in the markets, particularly in the eurozone. Such instability, volatility and negative economic impact could, in turn, adversely affect our business, financial condition and results of operations.

The outbreak of contagious diseases may have a material adverse effect on our business, results of operations financial condition and cash flows.

The World Health Organization has declared the current COVID-19 outbreak a global pandemic. Around the

world, governments are taking measures in response to the outbreak, including imposing quarantines and travel restrictions and closures of various institutions; additional measures may also be imposed. Supply chains and markets have also been negatively impacted. The duration of the outbreak and how much more extensive it will become is unclear. The outbreak may lead to a disruption of our business. Given the uncertainties surrounding the development of the outbreak, it is difficult to predict the extent to which we may be affected.

Risks Relating to Our Capital Structure

Significant indebtedness—Our level of indebtedness could adversely affect our ability to react to changes in our business, and we may be limited in our ability to fulfill our obligations with respect to the Senior Secured Notes, the Senior Secured Term Loans and the 2024 IGH Notes and to use debt to fund future capital needs.

We are significantly indebted and as of December 31, 2019, had total consolidated loans and borrowings of €6,887.3 million as compared to total equity of €1,528.0 million. In addition, we had €204.1 million available for future borrowings under the unused portion of our Securitization Program. Our substantial indebtedness could have important consequences to holders of the Senior Secured Notes, the 2024 IGH Notes and the creditors under the Senior Secured Term Loans and the Schuldschein Loan by adversely affecting our financial position including, but not limited to:

- requiring us to dedicate all of our cash flow from operations (after the payment of operating expenses) to payments with respect to our indebtedness, thereby reducing the availability of our cash flow for working capital, capital expenditures, acquisitions, joint ventures, product research and development, and other general corporate expenditures;
- increasing our vulnerability to, and reducing our flexibility to respond to, adverse general economic or industry conditions;
- limiting our flexibility in planning for, or reacting to, competition or changes in our business or industry;
- limiting our ability to borrow additional funds and increasing the cost of any such borrowing;
- restricting us from making strategic acquisitions or exploring business opportunities; and
- placing us at a competitive disadvantage relative to competitors that have less debt or greater financial resources.

Any of these or other consequences or events could have a material adverse effect on our ability to satisfy our debt obligations, including with respect to the Senior Secured Notes, the 2024 IGH Notes, the Senior Secured Term Loans and the Schuldschein Loan. Our ability to make payments on and refinance our indebtedness will depend on our ability to generate cash from our operations. Our ability to generate cash from operations is subject, in large part, to general economic, competitive, legislative and regulatory factors and other factors that are beyond our control. We may not be able to generate enough cash flow from operations nor obtain enough capital to service our debt or fund our planned capital expenditures.

In addition, we may be able to incur substantial additional debt in the future, including indebtedness in connection with any future acquisition and indebtedness in connection with an inventory financing or similar arrangement. The terms of the Indentures, Schuldschein Loan Agreement and the Senior Secured Term Loans Agreement permit our subsidiaries to do so, in each case, subject to certain limitations. If new debt is added to our current debt levels, the risks that we now face could intensify. Moreover, some of the debt we may incur in the future could be structurally senior to the 2024 IGH Notes or the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan, and may be secured by collateral that does not secure the 2024 IGH Notes or the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan.

For further information regarding our substantial leverage and for more information about our outstanding indebtedness, see also “Operating and Financial Review and Prospects” and “Description of Certain Indebtedness.”

Restrictive covenants in our debt instruments—We are subject to restrictive debt covenants that may limit our ability to finance our future operations and capital needs and to pursue business opportunities and activities. If we default under these covenants, we will not be able to meet our payment obligations.

The Senior Secured Term Loans Agreement, Schuldschein Loan Agreement and the Indentures contain a number of significant covenants that restrict some of our and our subsidiaries' corporate activities, including our and their ability to:

- incur or guarantee additional debt and issue certain preferred stock;
- make restricted payments, including paying dividends or making other distributions and prepaying or redeeming subordinated debt or equity;
- create or incur certain liens;
- sell, lease or transfer certain assets;
- enter into arrangements that restrict dividends or other payments to us;
- create encumbrances or restrictions on the payment of dividends or other distributions, loans or advances and on the transfer of assets;
- engage in certain transactions with affiliates;
- create unrestricted subsidiaries; and
- consolidate, merge or transfer all or substantially all of our assets and the assets of our subsidiaries on a consolidated basis.

All of these limitations are or will be subject to significant exceptions and qualifications. The covenants to which we are subject could limit our ability to finance our future operations and capital needs and our ability to pursue business opportunities and activities that may be in our interest.

Also, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement require us and some of our subsidiaries to comply with certain affirmative covenants. See "Description of Certain Indebtedness—Senior Secured Term Loans" and "Description of Certain Indebtedness—Schuldschein Loan."

Our ability to comply with these covenants and restrictions may be affected by events beyond our control. These include prevailing economic, financial and industry conditions. If we breach any of these covenants or restrictions, we could be in default under the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement. This would permit the lenders to take certain actions, including declaring all amounts that we have borrowed under the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement to be due and payable, together with accrued and unpaid interest. A failure to pay such amounts would also result in an event of default under the Indentures. If we are unable to repay our debt to the lenders, they could proceed against the Collateral that secures the debt under the Senior Secured Term Loans Agreement, the Notes, the Schuldschein Loan Agreement certain hedging liabilities and certain cash management liabilities. If the debt under our Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Notes or any other material financing arrangement that we enter into were to be accelerated, our assets may be insufficient to repay in full the Senior Secured Term Loans, the Schuldschein Loan, the Notes and our other debt.

Securitization Program—We use the Securitization Program to meet some of our liquidity requirements and are subject to various covenants under the Securitization Program, which, if we are unable to comply with them, could result in the acceleration of our debt.

Unless the maturity date of the Securitization Program is extended, the Securitization Program will mature in December 2022. We satisfy a significant amount of our short-term liquidity needs with amounts available under the Securitization Program. While we have in principle agreed to terms with our securitization providers, our ability to refinance the Securitization Program could be affected by a number of factors, including volatility in the financial markets, contractions in the availability of credit, including in interbank lending, and changes in investment markets, including changes in interest rates, exchange rates and returns from equity,

property and other investments. Our liquidity will be adversely affected if we are unable to refinance the Securitization Program on acceptable terms or at all, and we can provide no assurance we will be able to do so.

The availability under the Securitization Program varies depending on the underlying receivables. For a more detailed discussion, please see “Description of Certain Indebtedness—Securitization Program.” In addition, the Securitization Program contains various covenants, and if we fail to comply with these covenants, a default may occur under the Securitization Program. If a default occurs under the Securitization Program, we may need to fund our working capital requirements from other sources.

No Revolving Credit Facility—We do not have a revolving credit facility, which may adversely affect our short-term liquidity.

In addition to our Securitization Program, prior to 2012 we relied upon a revolving credit facility to meet our short-term liquidity needs. However, we no longer have a revolving credit facility. While we believe we have sufficient cash on our balance sheet to meet our working capital needs, such amounts may not be sufficient. Should we require cash in an amount exceeding the cash available for cash collateralized letters of credit, our short-term liquidity will be adversely affected.

Ability to repay and service debt—To repay or refinance and service our debt, we will require a significant amount of cash.

Our ability to make principal or interest payments when due on our indebtedness, including the Senior Secured Term Loans, the Schuldschein Loan and the Notes, will depend upon our future performance and our ability to generate cash. Our ability to generate cash depends on many factors beyond our control. The ability of our subsidiaries to transfer monies upstream to us, as well as to pay operating expenses and to fund planned capital expenditures, any future acquisitions and research and development efforts, will depend on our businesses’ ability to generate cash in the future, as well as limitations that may be imposed under applicable law. This, to an extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors, including those factors discussed in this “Risk Factors” section, many of which are beyond our and our subsidiaries’ control. Please see “Selected Financial Information” and “Operating and Financial Review and Prospects.” If we sustain losses in the future, our ability to repay and service our debt may be materially impaired.

If we are unable to generate sufficient cash flow to meet our payment obligations, we may be forced to reduce or delay planned expansions or capital expenditures, sell significant assets, discontinue specified operations, obtain additional funding in the form of debt or equity capital or attempt to restructure or refinance all or a portion of our debt on or before maturity. We cannot assure you that we would be able to accomplish any of these alternatives on a timely basis or on commercially reasonable terms, if at all. In addition, the terms of our debt, including the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures will limit our ability to pursue any of these alternatives. If we are unsuccessful in any of these efforts, we may not have sufficient cash to meet our obligations.

Financing a change of control offer—We may not be able to raise the funds necessary to finance a change of control offer required by the Indentures and, if this occurs, we would be in default under the Indentures.

Under the terms of the Indentures, we will be required to offer to repurchase the 2026 Senior Secured Notes, the 2025 Senior Secured Notes or the 2024 IGH Notes, as applicable, and under the terms of the Schuldschein Loan Agreement, we will be required to offer to repay the Schuldschein Loan, in each case if certain events constituting a change of control occur. Our obligations under the Senior Secured Term Loans Agreement could also be accelerated upon the occurrence of a change of control under the Indentures, the Schuldschein Loan Agreement or, in the case of the Indentures, other change of control events. It is possible that we may not have sufficient funds at the time of a change of control to repurchase any or all of the Notes, or repay our outstanding obligations under the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement. We expect that we would require third party financing to make an offer to purchase, or repay, as applicable, the Notes and the Schuldschein Loan or to repay our outstanding obligations under the Senior Secured Term Loans Agreement upon a change of control. We cannot assure you that we would be able to obtain such financing. Our failure to repurchase or repay, as applicable, any or all of the Notes or the Schuldschein Loan would be an event of default under the Indentures and the Schuldschein Loan Agreement, respectively, and would cause a cross default under the Senior Secured Term Loans Agreement. Similarly, a failure to repay the Senior Secured Term Loans upon a Change of Control would cause a cross default under the Indentures and the Schuldschein Loan Agreement.

The change of control provisions contained in the Indentures may not protect the holders of the Senior Secured Notes, the holders of the 2024 IGH Notes, the lenders under the Senior Secured Term Loans Agreement or the lenders under the Schuldschein Loan Agreement in the event of highly leveraged transactions and other important corporate events, including reorganizations, restructurings, recapitalizations, mergers or similar transactions that may adversely affect such creditors, because these transactions may not involve a change in voting power or beneficial interest of the magnitude required to trigger the change of control provisions or, even if they do, may not constitute a “Change of Control” as defined in the applicable Indenture.

Except as described in the change of control provisions therein, the Indentures do not contain provisions that would require us to offer to repurchase or redeem the 2024 IGH Notes or the Senior Secured Notes, and the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement do not contain provisions that would require us to repay the Senior Secured Term Loans or Schuldschein Loan, as applicable, in the event of a reorganization, restructuring, merger, recapitalization or similar transaction.

The definition of “Change of Control” under the Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement includes a disposition to any person of “all or substantially all” of the assets of IGH and its restricted subsidiaries taken as a whole, in the case of the 2024 IGH Notes Indenture, or Lux I and its restricted subsidiaries taken as a whole, in the case of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement. Although there is a limited body of case law interpreting the phrase “all or substantially all,” there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances, there may be a degree of uncertainty as to whether a particular transaction would involve a disposition of “all or substantially all” of the assets of IGH and its restricted subsidiaries taken as a whole, in the case of the 2024 IGH Notes Indenture, or Lux I and its restricted subsidiaries taken as a whole, in the case of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement. As a result, it may be unclear as to whether a change of control has occurred and whether the applicable issuer is required to make an offer to repurchase the 2024 IGH Notes and the Senior Secured Notes or the borrowers are required to repay the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement.

Finance Subsidiary and Holding Company Issuers and Borrowers—The Senior Secured Notes Issuer and the U.S. Borrower are finance companies and IGH is a holding company, none of which has independent operations, and each is dependent on payments under the Senior Secured Term Loans Proceeds Loans, the Notes Proceeds Loans and Schuldschein Proceeds Loan to provide it with funds to meet its obligations under the Senior Secured Term Loans, the Notes and the Schuldschein Loan, as applicable.

The Senior Secured Notes Issuer (which is also the U.K. Borrower under the Senior Secured Term Loans and the Schuldschein Loan) and the U.S. Borrower are wholly-owned finance companies that conduct no business operations. They have limited assets, no subsidiaries and a limited ability to generate revenues. The only significant assets of the Senior Secured Notes Issuer are its rights under each of the Notes Proceeds Loans, the Schuldschein Proceeds Loan, and the Senior Secured Term Loans Proceeds Loans made by it to IHL. The Senior Secured Notes Issuer’s material liabilities include the Senior Secured Notes, the Schuldschein Loan, the euro-denominated Senior Secured Term Loans, the guarantee of obligations under the dollar-denominated Senior Secured Term Loans, the 2024 IGH Notes and any additional debt it may incur in the future. The only significant assets of the U.S. Borrower are its rights under the Senior Secured Term Loans Eurobond entered into between the U.S. Borrower, as subscriber, and IHL, as issuer. The U.S. Borrower’s material liabilities include the dollar-denominated Senior Secured Term Loans and the guarantee of obligations under the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the 2024 IGH Notes Indenture, as well as any additional debt it may incur in the future.

IGH is a holding company that conducts no business operations. It has limited assets and a limited ability to generate revenues. The only significant assets of IGH are the 2024 IGH Notes Proceeds Loan made by it to IHL and its ownership of 100% of the shares of INEOS Luxembourg I S.A. (“**Lux I**”) (Lux I itself being a holding company whose only assets are its indirect interest in the shares of our operating subsidiaries). IGH’s material liabilities include the 2024 IGH Notes and the guarantee of obligations under the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and any additional debt it may incur in the future.

As such, the Senior Secured Notes Issuer, the U.S. Borrower and IGH are dependent upon payments from IHL in order to make any payments under the Senior Secured Notes, the Senior Secured Term Loans, the Schuldschein Loan or the 2024 IGH Notes, as applicable. If IHL fails to make scheduled payments on the Notes Proceeds Loans, the Senior Secured Term Loans Proceeds Loans or the Schuldschein Proceeds Loan, it is not

expected that the Senior Secured Notes Issuer, the U.S. Borrower or IGH will have any other sources of funds that would allow them to make payments on their indebtedness.

In addition, IHL is a holding company that conducts no independent business operations. The ability of our subsidiaries to make payments to IHL to fund payments on the Notes Proceeds Loans, the Schuldschein Proceeds Loan and the Senior Secured Term Loans Proceeds Loans, and the ability of our subsidiaries to make upstream payments in general, will depend upon their cash flows and earnings which, in turn, will be affected by all of the factors discussed in these “Risk Factors.”

The payment of dividends and the making, or repayment, of loans and advances to IHL by IHL’s direct subsidiaries and such payments by its indirect subsidiaries to their respective parent entities are subject to various restrictions. Existing and future debt of certain of these subsidiaries may prohibit the payment of dividends or the making, or repayment, of loans or advances to IHL or its parent entities. The terms of the Intercreditor Deed also restrict certain intra-group payments (other than payments under the Notes Proceeds Loans, the Schuldschein Proceeds Loan and the Senior Secured Term Loans Proceeds Loans). In addition, the ability of any of IHL’s direct or indirect subsidiaries to make certain distributions may be limited by the laws of the relevant jurisdiction in which the subsidiaries are organized or located, including financial assistance rules, corporate benefit laws and other legal restrictions which, if violated, might require the recipient to refund unlawful payments.

Although the Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement limit the ability of IHL’s subsidiaries to enter into future consensual restrictions on their ability to pay dividends and make other payments to IHL, there are significant qualifications and exceptions to these limitations. We cannot assure the holders of the Notes, the lenders under the Senior Secured Term Loans Agreement or the lenders under the Schuldschein Loan Agreement that arrangements with IHL’s subsidiaries and the funding permitted by the agreements governing existing and future indebtedness of IHL’s subsidiaries will provide IHL with sufficient dividends, distributions or loans to fund payments on the Notes Proceeds Loans, the Senior Secured Term Loans Proceeds Loans and the Schuldschein Proceeds Loan when due. See “Description of Certain Indebtedness.”

Second ranking security interests—The 2024 IGH Notes are secured only by second ranking security interests over certain of our assets, which are subject to certain limitations, and are not secured by any assets of the guarantors other than the shares of IHL, and the lenders under the Senior Secured Term Loans Agreement, the lenders under the Schuldschein Loan Agreement, the holders of the Senior Secured Notes and certain hedging counterparties and cash management providers are entitled to remedies available to a secured lender, which gives them priority over the holders of the 2024 IGH Notes to collect amounts due to them.

The 2024 IGH Notes are secured only by a second ranking charge over 100% of the shares of IHL and a second ranking assignment over the 2024 IGH Notes Proceeds Loans, and the guarantees of the 2024 IGH Notes are not secured by any other assets of the Guarantors. Our obligations under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Senior Secured Notes and certain hedging arrangements are secured by, among other things, first ranking security over substantially all of our assets (including intellectual property rights) and substantially all of the assets of certain of the Guarantors. Furthermore, the Indentures permit us to incur additional debt that can be secured by liens on the Collateral securing the 2024 IGH Notes that rank senior to, or equally with, the liens on Collateral that secure the 2024 IGH Notes. If we become insolvent or are liquidated, or if payment under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement or the Senior Secured Notes or in respect of any other secured indebtedness is accelerated, the lenders under the Senior Secured Term Loans Agreement, the lenders under the Schuldschein Loan Agreement or holders of the Senior Secured Notes or other secured indebtedness will, subject to the terms of the Intercreditor Deed, be entitled to exercise the remedies available to a secured lender under applicable law (in addition to any remedies that may be available under documents pertaining to the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Senior Secured Notes or other senior debt).

Upon the occurrence of any event of default under the Senior Secured Term Loans Agreement, the Senior Secured Notes Indentures or the Schuldschein Loan Agreement, the administrative agent under the Senior Secured Term Loans Agreement (the “**Senior Facility Agent**”) (on the instructions of the lenders under the Senior Secured Term Loans Agreement holding more than 50% of the outstanding principal amount of the Senior Secured Term Loans), the trustee under the relevant Senior Secured Notes Indenture or the Schuldschein Loan Trustee, as applicable, may be able to prohibit the payment of the 2024 IGH Notes and guarantees either

by limiting our ability to access our cash flow or under the subordination provisions contained in the Intercreditor Deed. Further, the Security Trustee for the secured parties under the Senior Secured Term Loans Agreement, the Senior Secured Notes Indenture and the Schuldschein Loan Agreement will (subject to certain limited exceptions) act with respect to such Collateral only at the direction of creditors holding a simple majority of the aggregate amount of outstanding first-priority secured debt (including the Senior Secured Notes, the Senior Secured Term Loans, the Schuldschein Loan, certain hedging liabilities, certain cash management liabilities and certain other senior secured notes or credit facilities that rank pari passu with the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan). These creditors will be able to instruct such Security Trustee to enforce the security. No noteholder will have any separate right to enforce or to require the enforcement of the Collateral. As a result, the holders of the 2024 IGH Notes will not be able to force a sale of such Collateral or otherwise independently pursue the remedies of a secured creditor under the security documents governing the Collateral for so long as any amounts under any first priority senior secured debt remain outstanding. See “Description of Certain Indebtedness—Intercreditor Deed.”

In addition, second ranking security over the assets securing the 2024 IGH Notes may be released in certain circumstances without any action by the Trustee or the holders of the 2024 IGH Notes. See “Description of Certain Indebtedness.” In addition, the value of the Collateral securing the 2024 IGH Notes may be difficult to realize and/or not be sufficient to satisfy the obligations under the 2024 IGH Notes and guarantees. See the risk factors entitled “Realization of Collateral—It may be difficult to realize the value of the Collateral securing the Senior Secured Term Loans and the applicable Notes” and “Sufficiency of the Collateral—The Collateral may not be sufficient to secure the obligations under the 2024 IGH Notes, the Senior Secured Notes, the Schuldschein Loan or the Senior Secured Term Loans.”

Realization of Collateral—It may be difficult to realize the value of the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes.

The Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes will be subject to any and all exceptions, defects, encumbrances, liens and other imperfections permitted under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the applicable Indentures and accepted by other creditors that have the benefit of first-priority security interests in the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes from time to time, including after the effective dates of the Senior Secured Term Loans, the Schuldschein Loan and the date the applicable Notes were first issued. The existence of any such exceptions, defects, encumbrances, liens and other imperfections could adversely affect the value of the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes as well as the ability of the Security Trustee to realize or foreclose on such Collateral. Furthermore, the first-priority ranking of security interests can be affected by a variety of factors, including, among others, the timely satisfaction of perfection requirements, statutory liens or recharacterization under the laws of certain jurisdictions.

The security interests of the Security Trustee are subject to practical problems generally associated with the realization of security interests in the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes. For example, the Security Trustee may need to obtain the consent of a third party to enforce a security interest. We cannot assure the holders of the applicable Notes, the creditors under the Senior Secured Term Loans or the creditors under the Schuldschein Loan that the Security Trustee will be able to obtain any such consents. We also cannot assure the holders of the applicable Notes, the creditors under the Senior Secured Term Loans or the creditors under the Schuldschein Loan that the consents of any third parties will be given when required to facilitate a foreclosure on such assets. Accordingly, the Security Trustee may not have the ability to foreclose upon those assets and the value of the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes may significantly decrease.

Furthermore, under applicable law, a security interest in certain tangible and intangible assets can only be properly perfected, and its priority retained, through certain actions undertaken by the secured party and/or the grantor of the security. The liens in the Collateral securing the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes may not be perfected with respect to the claims of the Senior Secured Term Loans, the Schuldschein Loan and the applicable Notes if we or the Security Trustee or the Senior Facility Agent, the Schuldschein Loan Trustee or the trustee under the relevant Indenture, as applicable, fails or is unable to take the actions we are or it is required, as the case may be, to take to perfect any of these liens.

In addition, our business requires a variety of national, state and local permits and licenses. The continued operation of properties that comprise part of the Collateral and which depend on the maintenance of such permits and licenses may be prohibited. Our business is subject to regulations and permitting requirements

and may be adversely affected if we are unable to comply with existing regulations or requirements or changes in applicable regulations or requirements. In the event of foreclosure, the transfer of such permits and licenses may be prohibited or may require us to incur significant cost and expense. Further, we cannot assure the holders of the applicable Notes, the creditors under the Senior Secured Term Loans or the creditors under the Schuldschein Loan that the applicable governmental authorities will consent to the transfer of all such permits. If the regulatory approvals required for such transfers are not obtained or are delayed, the foreclosure may be delayed, a temporary shutdown of operations may result and the value of the Collateral may be significantly decreased.

Sufficiency of the Collateral—The Collateral may not be sufficient to secure the obligations under the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans or the Schuldschein Loan.

The Senior Secured Notes and the guarantees granted thereunder are secured by security interests in the same Collateral that secures the obligations under the Senior Secured Term Loans, the Schuldschein Loan, certain hedging liabilities and certain cash management liabilities and, with respect to certain Collateral, the 2024 IGH Notes (on a second ranking basis). The Collateral may also secure additional debt to the extent permitted by the terms of the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Indentures and the Intercreditor Deed, including certain hedging obligations and cash management arrangements. The rights of the holders of the 2024 IGH Notes to the Collateral would be diluted by any increase in the debt and, in the case of the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan, the rights of the holders and lenders, as applicable, would be diluted by any increase in first-priority debt secured by the relevant Collateral or a reduction of the Collateral securing the applicable Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan.

The value of the Collateral and the amount to be received upon a sale of such Collateral will depend upon many factors, including, among others, the ability to sell the Collateral in an orderly sale, the condition of the economies in which operations are located and the availability of buyers. The book value of the Collateral should not be relied on as a measure of realizable value for such assets. All or a portion of the Collateral may be illiquid and may have no readily ascertainable market value. Likewise, we cannot assure the holders of the applicable Notes, the creditors under the Senior Secured Term Loans or the creditors under the Schuldschein Loan that there will be a market for the sale of the Collateral, or, if such a market exists, that there will not be a substantial delay in its liquidation. In addition, the share pledges of an entity may be of no value if that entity is subject to an insolvency or bankruptcy proceeding. The Collateral is located in a number of countries, and the multi-jurisdictional nature of any foreclosure on the Collateral may limit the realizable value of the Collateral. The Collateral will be released in connection with an enforcement sale pursuant to the Intercreditor Deed.

Limitations on the value of the Collateral—The applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan will be secured only to the extent of the value of the assets that have been granted as security for such Notes, the Senior Secured Term Loans or the Schuldschein Loan, as applicable.

If there is an event of default on the applicable Notes, the Senior Secured Term Loans or the Schuldschein Loan, the holders of the applicable Notes, the creditors under the Senior Secured Term Loans and the creditors under the Schuldschein Loan will be secured only to the extent of the value of the assets that have been granted as security for the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan. Not all of the INEOS Group's assets secure the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan, and the only Collateral securing the IGH Notes are second-priority security interests in the 2024 IGH Notes Proceeds Loans and the shares of IHL. In addition, in the future, the obligations to provide additional guarantees and grant additional security over assets in respect of the applicable Notes, whether as a result of the acquisition or creation of future assets or subsidiaries or otherwise, is subject to agreed security principles under the applicable Indenture and, in certain circumstances, indirectly through the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement, subject to certain other agreed security principles. To the extent that lenders under the Senior Secured Term Loans and the Schuldschein Loan are granted security, the negative pledge in the Senior Secured Notes Indentures may require such security to also be granted for the benefit of the holders of the Senior Secured Notes. Similarly, in the future, the obligations to provide additional guarantees and grant additional security over assets in respect of the Senior Secured Term Loans or the Schuldschein Loan, whether as a result of the acquisition or creation of future assets or subsidiaries or otherwise, is subject to agreed security principles under the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement, as applicable. The agreed security principles set forth in the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement contain a number of limitations on the rights of the lenders to be granted security in certain circumstances. The operation of the agreed security principles may result in, among other things, the amount recoverable under any Collateral provided being limited or security

not being granted or perfected over a particular type or class of assets. Accordingly, the agreed security principles may affect the value of the security provided by the Senior Secured Notes Issuer, the U.S. Borrower and the Guarantors of the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan.

To the extent that the claims of the holders of the applicable Notes or the creditors under the Senior Secured Term Loans or the Schuldschein Loan exceed the value of the assets securing such Notes, Senior Secured Term Loans or Schuldschein Loan and other obligations, those claims will rank equally with the claims of the holders of all other existing and future senior unsecured indebtedness ranking *pari passu* with such Notes, Senior Secured Term Loans or Schuldschein Loan. The claims of the holders of the 2024 IGH Notes in respect of the guarantees under the 2024 IGH Notes Indentures will rank junior to the claims of the holders of the Senior Secured Notes, of the lenders under the Senior Secured Term Loans Agreement and of the lenders under the Schuldschein Loan Agreement. As a result, if the value of the assets pledged as security for the applicable Notes, the Senior Secured Term Loans or the Schuldschein Loan is less than the value of the claims of the holders of the applicable Notes, the lenders under the Senior Secured Term Loans or the lenders under the Schuldschein Loan, those claims may not be satisfied in full before the claims of certain unsecured creditors are paid.

Challenges to Collateral—The grant of Collateral to secure the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan might be challenged or voidable in an insolvency proceeding.

The grant of Collateral in favor of the Security Trustee may be voidable by the grantor or by an insolvency trustee, liquidator, receiver or administrator or by other creditors, or may be otherwise set aside by a court, or be unenforceable if certain events or circumstances exist or occur, including, among others, if the grantor is deemed to be insolvent at the time of the grant, or if the grant permits the secured parties to receive a greater recovery than if the grant had not been given and an insolvency proceeding in respect of the grantor is commenced within a legally specified “clawback” period following the grant.

For example, where certain Collateral is secured after the issue date of the relevant Senior Secured Notes, effective date of the Senior Secured Term Loans or the effective date of the Schuldschein Loan, if the grantor of such security interest were to become subject to a bankruptcy or winding up proceeding after the relevant date, then any mortgage or security interest in Collateral delivered after such date would face a greater risk than security interests in place on such date of being avoided by the grantor or by its trustee, receiver, liquidator, administrator or similar authority, or otherwise set aside by a court, as a preference under insolvency law. To the extent that the grant of any security interest is voided, holders of the relevant Notes, creditors under the Senior Secured Term Loans or creditors under the Schuldschein Loan would lose the benefit of the security interest.

Structural subordination—The applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan, and the guarantees in respect thereof, will be structurally subordinated to the liabilities and any preferred stock of the non-guarantor subsidiaries.

Some, but not all, of our subsidiaries guarantee the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan. Unless a subsidiary is a Guarantor of such obligations, our subsidiaries do not have any obligation to pay amounts due on the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan or to make funds available for that purpose. Accordingly, the holders of the Notes, the lenders under the Senior Secured Term Loans Agreement and the lenders under the Schuldschein Loan Agreement should only rely on the guarantees of the applicable Notes, the Senior Secured Term Loans or the Schuldschein Loan, as applicable, to provide credit support in respect of payments of principal or interest on the applicable Notes, the Senior Secured Term Loans or the Schuldschein Loan, as applicable.

Our operating subsidiaries are separate and distinct legal entities and those of our subsidiaries that do not guarantee the Notes, the Senior Secured Term Loans and the Schuldschein Loan have no obligation, contingent or otherwise, to pay any amounts due pursuant to the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan or to make any funds available therefor, whether by dividends, loans, distributions or other payments, and do not guarantee the payment of interest on, or principal of, the applicable Notes, the Senior Secured Term Loans and the Schuldschein Loan. Generally, claims of creditors of a non-guarantor subsidiary, including trade creditors, and claims of any preferred stockholders of the subsidiary, will have priority with respect to the assets and earnings of the subsidiary over the claims of creditors of its parent entity, including claims against IHL under the 2024 IGH Notes Proceeds Loans, the 2025 Senior Secured Notes Proceeds Loans, the 2026 Senior Secured Notes Proceeds Loans, Senior Secured Term Loans Proceeds Loans and the Schuldschein Proceeds Loan and by holders of the applicable Notes, lenders under the Senior

Secured Term Loans Agreement and lenders under the Schuldschein Loan Agreement under the guarantees. In the event of any foreclosure, dissolution, winding-up, liquidation, reorganization, administration or other bankruptcy or insolvency proceeding of any of our non-guarantor subsidiaries, the creditors of the Guarantors (including the holders of the applicable Notes, lenders under the Senior Secured Term Loans Agreement and lenders under the Schuldschein Loan Agreement) will have no right to proceed against such subsidiary's assets and holders of their indebtedness and their trade creditors and preferred stockholders will generally be entitled to payment in full of their claims from the assets of those subsidiaries before any Guarantor, as direct or indirect shareholder, will be entitled to receive any distributions from such subsidiary. As such, the applicable Notes, the Senior Secured Term Loans, the Schuldschein Loan and each guarantee, the Notes Proceeds Loans, the Senior Secured Term Loans Proceeds Loans and the Schuldschein Proceeds Loan are each structurally subordinated to the creditors (including trade creditors) and any preferred stockholders of our non-guarantor subsidiaries.

Contractual subordination—The right of holders of the 2024 IGH Notes to receive payments on the guarantees will be junior to the Guarantors' obligations under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Senior Secured Notes Indentures, certain hedging obligations and certain cash management liabilities.

The 2024 IGH Notes are guaranteed by IHL and certain of our other subsidiaries. Pursuant to the Intercreditor Deed, these guarantees rank behind, and are subordinated to, all of the Guarantors' existing and future obligations under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Senior Secured Notes Indentures, certain hedging liabilities and certain cash management liabilities, and any other Designated Senior Indebtedness (as defined in the 2024 IGH Notes Indenture) of the Guarantors. These guarantees will also rank behind any guarantees of debt that we or IHL are permitted by the 2024 IGH Notes Indenture to incur in the future that is secured by liens on all or substantially all of the assets securing the obligations under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Senior Secured Notes Indentures and guaranteed by all or substantially all of our subsidiaries that guarantee obligations under Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Senior Secured Notes Indentures. The 2024 IGH Notes Indenture provides that the guarantees will be subordinated as set forth in the Intercreditor Deed. Pursuant to the Intercreditor Deed, the guarantees will not become enforceable until 179 days after an event of default under the 2024 IGH Notes has occurred and notice has been given to the Senior Facility Agent, the Schuldschein Loan Trustee and the trustees under the Senior Secured Notes Indentures or earlier, in limited circumstances. In addition, the guarantees may be released in certain circumstances without any action by the trustee under the 2024 IGH Notes Indenture or the holders of the 2024 IGH Notes.

All payments on the guarantees and the 2024 IGH Notes Proceeds Loan are also effectively prohibited by the terms of the guarantees and the Intercreditor Deed, respectively, if a specified payment event of default occurs under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement or the Senior Secured Notes Indentures until the default has been remedied or waived and for 179 days from the date notice is served on IGH and INEOS Group Holdings Limited by the facility agent under the Senior Secured Term Loans Agreement, the Schuldschein Loan Trustee under the Schuldschein Loan Agreement or the trustee under the Senior Secured Notes Indenture or representatives of certain future debt, as applicable, in the event that certain other events of default occur. See "Description of Certain Indebtedness—Intercreditor Deed".

Decisions regarding Collateral—Holders of the Senior Secured Notes, the creditors under the Senior Secured Term Loans and the creditors under the Schuldschein Loan will not control certain decisions regarding the Collateral.

The 2026 Senior Secured Notes are secured by the same Collateral that secures the Senior Secured Term Loans, the Schuldschein Loan and the 2025 Senior Secured Notes. In addition, under the terms of the Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan, we are permitted in the future to incur additional indebtedness and other obligations that may share in the liens on the Collateral securing the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan and the liens on the Collateral securing our other secured debt.

The Intercreditor Deed provides that a common security trustee, who serves as the Security Trustee for the secured parties under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Senior Secured Notes Indentures will (subject to certain limited exceptions) act with respect to such Collateral only at the direction of creditors holding a simple majority of the aggregate amount of outstanding first-priority secured debt (including the Senior Secured Term Loans, the Schuldschein Loan, the Senior Secured Notes, certain hedging liabilities, certain cash management liabilities and any other senior secured notes or credit facilities that are permitted to be issued under the Senior Secured Term Loans Agreement, the Schuldschein

Loan Agreement and the Indentures and that the trustees or lenders in respect thereof accede to the Intercreditor Deed) and only such creditors will be able to instruct the Security Trustee to enforce the security. No lender or noteholder will have any separate right to enforce or to require the enforcement of the Collateral. See “Description of Certain Indebtedness—Intercreditor Deed.” As a result, the holders of the Senior Secured Notes and the creditors under the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement will not be able to force a sale of such Collateral or otherwise independently pursue the remedies of a secured creditor under the relevant security documents for so long as any amounts under any other first priority senior secured debt (including the debt outstanding under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Senior Secured Notes Indenture, and any other senior secured notes or debt that are permitted to be issued under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Indentures, and that the trustees or lenders in respect thereof accede to, the Intercreditor Deed) remain outstanding in an amount equal to or greater than 50% of the aggregate principal amount of the total first-priority senior secured debt. The creditors under the Senior Secured Term Loans and the Schuldschein Loan and the holders of the 2026 Senior Secured Notes and the 2025 Senior Secured Notes may have interests that diverge from one another and they may not elect to pursue their remedies under the security documents at a time when it would otherwise be advantageous for the other creditors to do so.

In addition, if the Security Trustee sells the shares of our subsidiaries that have been pledged as Collateral through an enforcement of their security interest in accordance with the Intercreditor Deed, claims under the guarantees of the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan by such subsidiaries and the liens over any other assets of such subsidiaries securing the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan and the guarantees may be released. See “Description of Certain Indebtedness—Intercreditor Deed”.

It is possible that disputes may occur between the holders of the 2025 Senior Secured Notes, the holders of the 2026 Senior Secured Notes, lenders under the Senior Secured Term Loans Agreement and the lenders under the Schuldschein Loan Agreement as to the appropriate manner of pursuing enforcement remedies with respect to the Collateral. In such an event, the holders of the Senior Secured Notes will be bound by any decisions of the creditors holding a simple majority of the aggregate amount of outstanding first-priority secured debt (including the 2025 Senior Secured Notes, the 2026 Senior Secured Notes, the Senior Secured Term Loans, the Schuldschein Loan, certain hedging liabilities, certain cash management liabilities and any other senior secured notes or credit facilities that are permitted to be issued under the Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement and that the trustees or lenders in respect thereof accede to the Intercreditor Deed), which may result in enforcement actions against the Collateral that are not approved by the holders of the Senior Secured Notes or that may be adverse to you. The creditors under the Senior Secured Term Loans Agreement and the creditors under the Schuldschein Loan Agreement will be subject to similar limitations in respect of their control over enforcement decisions. See “Description of Certain Indebtedness—Intercreditor Deed.”

Further, the security interests in the Collateral that will constitute security for the obligations of the Senior Secured Notes Issuer and the Guarantors under the Senior Secured Notes and the Senior Secured Notes Indentures will not be granted directly to the holders of the applicable Senior Secured Notes, but rather to the Security Trustee on behalf of the holders of the applicable Senior Secured Notes. Similarly, the security interests in the Collateral that will constitute security for the obligations of the U.K. Borrower, the U.S. Borrower and the Guarantors under the Senior Secured Term Loans and the Senior Secured Term Loans Agreement and under the Schuldschein Loan and the Schuldschein Loan Agreement will not be granted directly to the creditors of the Senior Secured Term Loans or Schuldschein Loan, as applicable, but rather to the Security Trustee on behalf of such creditors. The Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement (or the Intercreditor Deed) will also operate so-called “Parallel Debt” obligations to satisfy a requirement under the laws of Belgium, Germany, Switzerland and France (and any other applicable jurisdictions with similar requirements) that the Security Trustee, as grantee of certain types of Collateral, be a creditor of the relevant security provider or, in regard to Germany, the secured claim. The Parallel Debt is in the same amount and payable at the same time as the obligations of the Senior Secured Notes Issuer and the Guarantors under the Senior Secured Notes Indentures and the Senior Secured Notes and the obligations of the U.K. Borrower and U.S. Borrower and the Guarantors under the Senior Secured Term Loans Agreement and the Senior Secured Term Loans and the Schuldschein Loan Agreement and the Schuldschein Loan (the “**Principal Obligations**”). Any payment in respect of the Principal Obligations shall discharge the corresponding Parallel Debt and any payment in respect of the Parallel Debt shall discharge the corresponding Principal Obligations. Although the Security Trustee will have, pursuant to the Parallel Debt, a claim against the Senior Secured Notes Issuer and the Guarantors under the applicable Senior Secured Notes for the full principal amount of the relevant Senior Secured Notes and the U.K. Borrower and U.S. Borrower and the Guarantors under the Senior Secured

Term Loans and the Schuldschein Loan for the full principal amount of the Senior Secured Term Loans or Schuldschein Loan, as applicable, holders of the Senior Secured Notes and creditors under the Senior Secured Term Loans and the Schuldschein Loan bear some risks associated with a possible insolvency or bankruptcy of the Security Trustee. In addition, there is no assurance that such a structure will be effective before courts in the governing law jurisdictions of the security documents as there is no judicial or other guidance as to its efficacy, and therefore the ability of the Security Trustee to enforce the Collateral may be restricted.

Release of Collateral and Guarantees—There are circumstances other than repayment or discharge of the Senior Secured Notes, repayment of the Senior Secured Term Loans or repayment of the Schuldschein Loan under which the Collateral securing the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan and the Guarantees granted thereunder will be released automatically, without the consent of the holders of the Senior Secured Notes, the trustee under the relevant Senior Secured Notes Indenture, the creditors under the Senior Secured Term Loans Agreement, the Senior Facility Agent, the creditors under the Schuldschein Loan Agreement or the Schuldschein Loan Trustee.

Under various circumstances, Collateral securing the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan and the Guarantees granted thereunder will be automatically and unconditionally released and discharged, including, *inter alia*:

- in connection with certain sales or other dispositions of assets or capital stock of Guarantors not prohibited by the limitation on sales of assets provisions in the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- in respect of liens on the property, assets and capital stock of Guarantors, in certain cases in which a Guarantor is released from its guarantee or Lux I designates any Restricted Subsidiary to be an Unrestricted Subsidiary in accordance with the applicable provisions of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- upon legal defeasance, covenant defeasance or satisfaction and discharge of the applicable Senior Secured Notes Indenture as provided therein;
- as described in the modifications and amendments provisions in the Senior Secured Notes Indentures, the miscellaneous section of the Senior Secured Term Loans Agreement and the decisions, amendments and waivers section of the Schuldschein Loan Agreement;
- in connection with an enforcement sale pursuant to or other sales contemplated and permitted by the Intercreditor Deed;
- in connection with the incurrence of certain capital lease obligations, purchase money obligations, lines of credit, bilateral facilities, working capital or overdraft facilities or other operating facilities permitted in compliance with the limitations on indebtedness under the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- to release and/or re-take any lien on any Collateral to the extent otherwise permitted by the terms of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement, the security documents governing the Collateral or the Intercreditor Deed or any additional intercreditor agreement;
- in the case of certain mergers, consolidations, sales of assets and reorganizations made in compliance with the applicable provisions under the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- in accordance with the limitations set out in the provisions on impairment of security interests under the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and Schuldschein Loan Agreement; and
- upon the full and final payment and performance of all obligations of the Senior Secured Notes Issuer under the Senior Secured Notes and the Senior Secured Notes Indentures, the full and final repayment and performance of all obligations of the U.K. Borrower and U.S. Borrower under the Senior Secured Term Loans and the Senior Secured Term Loans Agreement or the full and final

repayment and performance of all obligations of the U.K. Borrower under the Schuldschein Loan and the Schuldschein Loan Agreement.

Under various circumstances, guarantees of the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan will be automatically and unconditionally released and terminated, including, *inter alia*:

- in connection with certain sales or other dispositions of the assets or capital stock of a Guarantor that is a Restricted Subsidiary in compliance with the requirements of the limitation on sale of assets provisions in the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement or the Schuldschein Loan;
- in certain cases in which a Guarantor that is a Restricted Subsidiary is designated as an “Unrestricted Subsidiary” or unconditionally released and discharged from its liabilities in accordance with the applicable provisions of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- upon legal defeasance, covenant defeasance or satisfaction and discharge of the applicable Senior Secured Notes Indenture as provided therein;
- as described in the mergers and modifications and amendments provisions in the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- in certain cases in which a Guarantor that is an Immaterial Subsidiary (as defined in the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement) is unconditionally released and discharged from its liabilities in accordance with the applicable provisions of the Senior Secured Notes Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement;
- in certain cases in which a Guarantor that is a Restricted Subsidiary is released from its obligations in compliance with the provisions laying out minimum coverage requirements for the EBITDA and assets of the Guarantors in the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement; and
- upon the full and final payment and performance of all obligations of the Senior Secured Notes Issuer under the Senior Secured Notes and the Senior Secured Notes Indentures, the full and final repayment and performance of all obligations of the U.K. Borrower and U.S. Borrower under the Senior Secured Term Loans and the Senior Secured Term Loans Agreement or the full and final repayment and performance of all obligations of the U.K. Borrower under the Schuldschein Loan and the Schuldschein Loan Agreement.

In addition, certain guarantees and Collateral of the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan are subject to release upon enforcement sale or other disposition as contemplated under the Intercreditor Deed. Unless consented to, the Intercreditor Deed provides that the Security Trustee shall not, in an enforcement scenario, exercise its rights to release the guarantees or security interests in the Collateral unless the relevant sale or disposal is made:

- for consideration all or substantially all of which is in the form of cash or cash equivalents;
- to the extent there is a release of guarantees or security granted for the benefit of the holders of the 2024 IGH Notes, concurrently with the discharge or release of the indebtedness of the disposed entities to certain other creditors, including the creditors under the Senior Secured Term Loans, the creditors under the Schuldschein Loan or the holders of the Senior Secured Notes; and
- pursuant to a public auction or a fair value opinion obtained from an internationally recognized investment bank or accounting firm selected by the Security Trustee.

See “Description of Certain Indebtedness—Intercreditor Deed.”

Release of Collateral and guarantees—There are circumstances other than repayment or discharge of the 2024 IGH Notes under which the Collateral securing the 2024 IGH Notes and the guarantees will be released automatically and under which the guarantees will be released automatically, without the consent of the holders of the 2024 IGH Notes or the trustee under the 2024 IGH Notes Indenture.

Under various circumstances, Collateral securing the 2024 IGH Notes will be automatically and unconditionally released, including, *inter alia*:

- except in respect of the shares of IHL and the 2024 IGH Notes Proceeds Loans, in connection with certain sales or other dispositions of assets or capital stock of a Guarantor permitted in accordance with the 2024 IGH Notes Indenture;
- upon legal defeasance, covenant defeasance or satisfaction and discharge of the 2024 IGH Notes Indenture as provided therein;
- in connection with certain releases of Initial Liens (as defined in the 2024 IGH Notes Indenture) in accordance with the applicable provisions of the 2024 IGH Notes Indenture;
- in connection with an enforcement sale or other disposition pursuant to the Intercreditor Deed;
- in respect of liens on the property and assets and capital stock of a Guarantor (except the shares of IHL and the 2024 IGH Notes Proceeds Loans), in certain cases in which such Guarantor is released from its guarantee according to the applicable provisions of the 2024 IGH Notes Indenture, the Intercreditor Deed or any additional intercreditor agreement;
- in respect of liens on the property and assets and capital stock of a Guarantor that is a Restricted Subsidiary (except the shares of IHL and the 2024 IGH Notes Proceeds Loans), if IGH designates any Restricted Subsidiary to be an Unrestricted Subsidiary in accordance with the applicable provisions of the 2024 IGH Notes Indenture, a release of the liens on the property and assets, and capital stock, of such subsidiary;
- to release and/or re-take any lien on any Collateral to the extent otherwise permitted by the terms of the 2024 IGH Notes Indenture, the security documents governing the Collateral or the Intercreditor Deed or any additional intercreditor agreement; and
- in connection with the incurrence of certain capital lease obligations, purchase money obligations, lines of credit, bilateral facilities, working capital or overdraft facilities or other operating facilities permitted in compliance with the limitations on indebtedness under the 2024 IGH Notes Indenture.

Under various circumstances, guarantees will be released automatically, including:

- in connection with certain sales or other dispositions of the assets or capital stock of a Guarantor that is a Restricted Subsidiary in compliance with the requirements of the limitation on sale of assets provisions in the 2024 IGH Notes Indenture;
- in certain cases in which a Guarantor that is a Restricted Subsidiary is designated as an “Unrestricted Subsidiary” in accordance with the applicable provisions of the 2024 IGH Notes Indenture;
- upon legal defeasance, covenant defeasance or satisfaction and discharge of the 2024 IGH Notes Indenture as provided therein;
- as described in the mergers and modifications and amendments provisions in the 2024 IGH Notes Indenture;
- in certain cases in which a Guarantor that is an Immaterial Subsidiary (as defined in the 2024 IGH Notes Indenture) is unconditionally released and discharged from its liabilities in accordance with the applicable provisions of the 2024 IGH Notes Indenture, to the extent that such Guarantor is unconditionally released and discharged from its liability with respect to the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the 2025 Senior Secured Notes, the 2026 Senior Secured Notes, the IGH Notes and any other credit facility or public debt;

- in certain cases in which a Guarantor that is a Restricted Subsidiary is released from its obligations in compliance with the provisions laying out minimum coverage requirements for the EBITDA and assets of the Guarantors in the Senior Secured Term Loans Agreement; and
- as described in the limitation on issuance of guarantees of indebtedness by Restricted Subsidiaries provisions in the 2024 IGH Notes Indenture, as applicable.

Post-petition interest—The value of the Collateral securing the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans or the Schuldschein Loan may not be sufficient to secure post-petition interest in the United States.

In the event of a bankruptcy, liquidation, dissolution, reorganization or similar proceeding against us in the United States, holders of the Notes, the lenders of the Senior Secured Term Loans and the lenders of the Schuldschein Loan will only be entitled to post-petition interest under the United States Bankruptcy Code to the extent that the value of their security interest in the Collateral is greater than their pre-bankruptcy claim. Holders of the Notes and the lenders of the Senior Secured Term Loans that have a security interest in Collateral with a value equal or less than their pre-bankruptcy claim will not be entitled to post-petition interest under the United States Bankruptcy Code. No appraisal of the fair market value of the Collateral has been prepared and therefore the value of the noteholders' or lenders' interest in the Collateral may not equal or exceed the principal amount of the relevant Notes, the Senior Secured Term Loans or Schuldschein Loan, as applicable.

Controlling shareholders—The interests of our principal shareholders may conflict with your interests.

Messrs. Ratcliffe, Currie and Reece own INEOS Limited, our ultimate parent holding company. Mr. Ratcliffe controls INEOS Limited. Our controlling shareholder has power to elect all of the directors of our companies, to change their management, to approve any changes to their organizational documents, and to approve any acquisitions or dispositions. As a result, his actions can affect our strategic decisions, including the payment of dividends the size of which may change or increase from time to time and may not necessarily be in line with past practice, our legal and capital structure and our day to day operations. In addition, our principal shareholders may have an interest in pursuing acquisitions, divestitures or other transactions, including repurchases of our debt, on the open market or otherwise, that, in their judgment, could enhance their equity investment, even though these transactions might involve risks to you. In the event of a conflict of interest between you and our principal shareholders, their actions could affect our ability to meet our payment obligations to you.

Enforcement in multiple jurisdictions—Enforcing your rights as a creditor under the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans or the Schuldschein Loan or under the guarantees granted thereunder or security across multiple jurisdictions may prove difficult.

The Senior Secured Notes Issuer, which is also the U.K. Borrower under the Senior Secured Term Loans and the borrower under the Schuldschein Loan, is incorporated under the laws of England and Wales, IGH is incorporated under the laws of Luxembourg, and the U.S. Borrower is incorporated under the laws of Delaware, and the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan are guaranteed by the Guarantors, which are incorporated or organized under the laws of Belgium, England and Wales, Germany, Jersey, Luxembourg, Norway, Singapore, Switzerland, certain provinces of Canada and certain states in the United States. In the event of a bankruptcy, insolvency or similar event, proceedings could be initiated in Belgium, Canada, England and Wales, Germany, Jersey, Luxembourg, Norway, Singapore, Switzerland and certain states in the United States. Proceedings could also be initiated in France or Scotland to enforce Senior Secured Notes, Senior Secured Term Loans and Schuldschein Loan creditors' rights against Collateral located in France or Scotland, respectively. Such multi-jurisdictional proceedings are likely to be complex and costly for creditors and otherwise may result in greater uncertainty and delay regarding the enforcement of such creditors' rights. The rights of the holders of the 2024 IGH Notes and the Senior Secured Notes, the rights of the creditors under the Senior Secured Term Loans, the rights of the creditors under the Schuldschein Loan, the guarantees of the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan, and the Collateral securing obligations under the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan will be subject to the insolvency and administrative laws of several jurisdictions and there can be no assurance that they will be able to effectively enforce their rights in such complex, multiple bankruptcy, insolvency or similar proceedings.

In addition, the bankruptcy, insolvency, administrative and other laws of the Guarantors' jurisdictions of organization may be materially different from, or in conflict with, each other and those of the United States, including in the areas of rights of creditors, priority of governmental and other creditors, ability to obtain post-petition interest and duration of the proceeding. The application of these laws, or any conflict among them, could call into question whether any particular jurisdiction's law should apply, adversely affect the ability of the holders of the 2024 IGH Notes and the Senior Secured Notes, the creditors under the Senior Secured Term Loans and the creditors under the Schuldschein Loan to enforce their rights under the 2024 IGH Notes, the Senior Secured Notes and the Senior Secured Term Loans, as applicable, and the applicable guarantees and security in those jurisdictions or limit any amounts that they may receive.

Moreover, in certain jurisdictions, it is unclear whether all security interests in the Collateral give the Security Trustee a right to prevent other creditors from foreclosing on and realizing the Collateral or whether certain security interests only give the Security Trustee and the holders of the 2024 IGH Notes and the Senior Secured Notes, the creditors under the Senior Secured Term Loans and the creditors under the Schuldschein Loan priority (according to their rank) in the distribution of any proceeds of such realization. Accordingly, the Security Trustee and the holders of the Senior Secured Notes, the creditors under the Senior Secured Term Loans and the creditors under the Schuldschein Loan (and, to the extent of the Collateral securing the 2024 IGH Notes, the holders of the 2024 IGH Notes) may not be able to avoid foreclosure by other creditors (including unsecured creditors) on the Collateral.

The laws of certain of the jurisdictions in which the Guarantors are organized limit the ability of these subsidiaries to guarantee debt of, or provide security for, other companies.

Prior ranking security interests—Any creditors with prior ranking liens will have prior access to proceeds of certain Collateral and the holders and lenders rights to enforce their security over the Collateral are limited.

To the extent that holders of other secured debt or third parties enjoy liens (including statutory liens) or other prior ranking security interests, whether or not permitted by the Indentures, the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement, such holders or third parties may have rights and remedies with respect to certain Collateral securing the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan and the guarantees that, if exercised, could reduce the proceeds available to satisfy the obligations under the Senior Secured Notes, the Senior Secured Term Loans, the Schuldschein Loan and the guarantees. In addition, certain security interests granted in respect of the more recently incurred debt instruments were, as a matter of local law, granted as junior ranking security interests in relation to the security granted in respect of the earlier incurred debt instruments. The existing first-ranking liens securing the earlier incurred senior secured indebtedness that were created under Luxembourg, Scottish, Norwegian, New York, Jersey and Scottish law remained in place and extended to secure the later incurred senior secured indebtedness. In some jurisdictions, the Security Documents creating the existing first-ranking liens securing the earlier incurred senior secured indebtedness were amended to extend such liens to the later incurred senior secured indebtedness (or, with respect to French and certain of the German security, junior ranking security interests were granted). The existing first-ranking liens securing the earlier incurred senior secured indebtedness that were created under English law and Singapore law remain in place, and new liens over the same Collateral were created in these jurisdictions to secure the later incurred senior secured indebtedness. In these jurisdictions where new liens were created, the ranking of these new liens relative to the existing liens, as a matter of general law, depend on a number of factors, such as the nature of the liens, the order of creation of the liens, compliance with the jurisdiction's perfection requirements with respect to the liens and the order of giving notices with respect to the liens, and accordingly without the Intercreditor Deed, the new liens would be likely to rank after the existing liens. Therefore, a holder of the 2025 Senior Secured Notes or the 2026 Senior Secured Notes or lender under the Schuldschein Loan Agreement may not be able to recover on such security interests or, in respect of security interests under German law, accessory security interests, because the beneficiaries of the senior ranking security interests will have a prior claim to all proceeds from the enforcement of the same, although the Intercreditor Deed provides for certain *pari passu* rules of allocation agreed as between the parties to it.

Enforcement of French share pledges—Under the security interests governed by French law, a holder may be required to pay a “soulte” in the event a holder decides to enforce the pledges of the shares by judicial or contractual foreclosure of the Collateral consisting of shares of INEOS France SAS or INEOS Technologies France SAS rather than by a sale of such Collateral in a public auction.

The pledges over shares of French companies may be enforced at the option of the secured creditor either by a sale of the pledged shares in a public auction (the proceeds of the sale being paid to the secured

creditors), by judicial foreclosure (*attribution judiciaire*) or by contractual foreclosure (*attribution conventionnelle*) of the shares to the secured creditor, following which the secured creditor is the legal owner of the pledged shares. A judge (in the context of a judicial foreclosure) or an expert (in the context of a contractual foreclosure pre-contractually agreed or appointed by a judge), will value the Collateral (in this case, the pledged shares) and if the value of the Collateral exceeds the amount of secured debt, the secured creditors may be required to pay the obligor a *soulte* equal to the difference between the value of the shares and the amount of the secured debt. This is true regardless of the actual amount of proceeds ultimately received by the secured creditors from a subsequent sale of the Collateral.

Consequently, in the event (i) the lenders under the Senior Secured Term Loans, the lenders under the Schuldschein Loan or the holders of the Senior Secured Notes are entitled to, enforce the share pledges over the shares of INEOS France SAS and INEOS Technologies France SAS through a judicial or contractual foreclosure and (ii) the value of such shares exceeds the amount of the secured debt, such lenders under the Senior Secured Term Loans, the lenders under the Schuldschein Loan or the holders of the Senior Secured Notes may be required to pay to the pledgor a *soulte* equal to the amount by which the value of such shares exceeds the amount of secured debt.

If the value of such shares is less than the amount of the secured debt, the relevant amount owed to the relevant creditors will be reduced by an amount equal to the value of such shares, and the remaining amount owed to such creditors will be unsecured.

Security interests governed by French law may only secure payment obligations and may only be enforced following a payment default (including following acceleration) and up to the secured amount that is due and remaining unpaid.

Value of Collateral—The Collateral is subject to casualty risks.

We intend to continue to maintain insurance or otherwise insure against hazards in respect of the Collateral. There are, however, certain losses that may be either uninsurable or not economically insurable, in whole or in part. Insurance proceeds may not compensate us fully for our losses. If there is a complete or partial loss of any of the Collateral, the insurance proceeds may not be sufficient to satisfy all of the secured obligations. In addition, even if there is sufficient insurance coverage, if there is a total or partial loss of certain Collateral, there may be significant delays in obtaining replacement Collateral.

Perfection of security interests—The rights of holders of the Notes, creditors under the Senior Secured Term Loans or creditors under the Schuldschein Loan in the Collateral may be adversely affected by the failure to perfect security interests in the Collateral.

Under applicable law, a security interest in certain tangible and intangible assets can only be properly perfected, and its priority retained, through certain actions undertaken by the secured party or the grantor, as applicable, of the security. The liens in the Collateral securing the Notes, the Senior Secured Term Loans and the Schuldschein Loan may not be perfected with respect to the claims of such Notes, Senior Secured Term Loans and Schuldschein Loan if we fail or are unable, or the Security Trustee fails or is unable, to take the actions we are or it is required, as the case may be, to take to perfect any of these liens. In addition, applicable law requires that certain property and rights acquired after the grant of a general security interest, such as real property, equipment subject to a certificate and certain proceeds, can only be perfected at or promptly following the time such property and rights are acquired and identified.

The trustee under the applicable Indenture, the Senior Facility Agent, the Schuldschein Loan Trustee or the Security Trustee (as applicable) may not monitor, or we may not comply with our obligations to inform such persons of, any future acquisition of property and rights by us, and the necessary action may not be taken to properly perfect the security interest in such after-acquired property or rights. Such failure may result in the invalidity of the security interest in the Collateral or adversely affect the priority of the security interest in favor of the holders of such Notes, the creditors under the Senior Secured Term Loans Agreement or the creditors under the Schuldschein Loan Agreement against third parties. Neither the trustee under the applicable Indenture, the Senior Facility Agent, the Schuldschein Loan Trustee nor the Security Trustee has any obligation to monitor the acquisition of additional property or rights by us or the perfection of any security interest.

Guarantees and Collateral limitations—The guarantees and pledges of Collateral will be subject to certain limitations on enforcement and may be limited by applicable laws or subject to certain defenses that may limit their validity and enforceability.

The Indentures, the Senior Secured Term Loan Agreement and the Schuldschein Loan Agreement provide that certain guarantees are limited to the maximum amount that can be guaranteed by the relevant Guarantor without rendering the relevant guarantee voidable or otherwise ineffective under applicable law and enforcement of each guarantee would be subject to certain generally available defenses. These laws and defenses include those that relate to corporate benefit, fraudulent transfer or conveyance, voidable preference, financial assistance, corporate purpose, capital maintenance or similar laws, regulations or defenses affecting the rights of creditors generally.

Although laws differ among various jurisdictions, in general, under fraudulent conveyance and other laws, a court could subordinate or void the guarantees and, if payment had already been made under a guarantee, require that the recipient return the payment to the relevant Guarantor, if the court were to find that:

- the relevant guarantee was incurred with actual intent to hinder, delay or defraud creditors or shareholders of the Guarantor or, in certain jurisdictions, even when the recipient was simply aware that the Guarantor was insolvent when it granted the relevant guarantee;
- the Guarantor did not receive fair consideration or reasonably equivalent value for the relevant guarantee and the Guarantor was: (i) insolvent or rendered insolvent because of the relevant guarantee; (ii) undercapitalized or became undercapitalized because of the relevant guarantee; or (iii) intended to incur, or believed that it would incur, indebtedness beyond its ability to pay at maturity;
- the relevant guarantees were held to exceed the corporate objects of the Guarantor or not to be in the best interests or for the corporate benefit of the Guarantor; or
- the amount paid or payable under the relevant guarantee was in excess of the maximum amount permitted under applicable law.

The measures of insolvency for purposes of fraudulent transfer laws vary depending upon applicable governing law. Generally, an entity would be considered insolvent if, at the time it incurred indebtedness:

- the sum of its debts, including contingent liabilities, is greater than the fair value of all its assets;
- the present fair saleable value of its assets is less than the amount required to pay the probable liability on its existing debts and liabilities, including contingent liabilities, as they become due; or
- it cannot pay its debts as they become due.

If a court were to find that the issuance of any of the Notes, the provision of the Senior Secured Term Loans or the provision of the Schuldschein Loan or a guarantee of any of the Notes, the Senior Secured Term Loans or the Schuldschein Loan was a fraudulent conveyance or held it unenforceable for any other reason, the court could hold that the payment obligations under such Notes, such Senior Secured Term Loans, such Schuldschein Loan or such guarantee are ineffective, or require the holders of such Notes, creditors under the Senior Secured Term Loans Agreement or creditors under the Schuldschein Loan Agreement, as applicable, to repay any amounts received with respect to such Notes, Senior Secured Term Loans, Schuldschein Loan or such guarantee. In the event of a finding that a fraudulent conveyance occurred, a holder may cease to have any claim in respect of the relevant Guarantor and would be a creditor solely of IGH (in the case of the 2024 IGH Notes), the Senior Secured Notes Issuer (in the case of the Senior Secured Notes, the euro-denominated Senior Secured Term Loans and the Schuldschein Loan) or the U.S. Borrower (in the case of the dollar-denominated Senior Secured Term Loans) and, if applicable, of the other Guarantors under any guarantees which have not been declared void.

Additionally, any future pledge of Collateral in favor of the Security Trustee, including pursuant to security documents delivered after the date of the Indentures, the Senior Secured Term Loans Agreement or the Schuldschein Loan Agreement might be avoidable by the pledgor (as debtor-in-possession) or by its trustee in bankruptcy if certain events or circumstances exist or occur, including, among others, if the pledgor is insolvent at the time of the pledge, the pledge permits the holders of the relevant Notes, the creditors under the Senior

Secured Term Loans Agreement or the creditors under the Schuldschein Loan Agreement to receive a greater recovery than if the pledge had not been given and a bankruptcy proceeding in respect of the pledgor is commenced within 90 days following the pledge, or in certain circumstances, a longer period.

In addition, under the terms of the Indentures, the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement, we will be permitted in the future to incur additional indebtedness and other obligations that may share in the liens on the Collateral securing the Notes, the Senior Secured Term Loans, the Schuldschein Loan and the liens on the Collateral securing our other secured debt. The granting of new security interests may require the releasing and retaking of security or otherwise create new hardening periods in certain jurisdictions. The applicable hardening period for these new security interests will run from the moment each new security interest has been granted or perfected. At each time, if the security interest granted or recreated were to be enforced before the end of the respective hardening period applicable in such jurisdiction, it may be declared void or ineffective or it may not be possible to enforce it. Further, certain security documents governing the security interests granted by the Guarantors provide that the amounts guaranteed by such security interests will be limited to the extent of the amount guaranteed by such Guarantor. Therefore, limitations in the guarantees will also serve to limit the amounts guaranteed by the pledges of Collateral.

Insolvency laws—Relevant insolvency laws in England, Luxembourg and other jurisdictions may provide a holder or lender with less protection than U.S. bankruptcy law.

The Senior Secured Notes Issuer and certain of the Guarantors are incorporated under the laws of England and Wales. Therefore, any insolvency proceedings by or against the Senior Secured Notes Issuer or such Guarantors would likely be based on English insolvency laws. IGH and certain of the Guarantors of the 2024 IGH Notes, the Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan are incorporated under the laws of Luxembourg. Therefore, any insolvency proceedings by or against IGH or such Guarantors would likely be based on Luxembourg insolvency laws. The other Guarantors are incorporated or organized or have assets located in Belgium, Canada, France, Germany, Jersey, Luxembourg, Norway, Scotland, Singapore, Switzerland and the United States, which could limit the enforceability of the guarantees and the security interests.

The procedural and substantive provisions of the insolvency laws in many of the jurisdictions in which the Guarantors are organized are generally more favorable to secured creditors than comparable provisions of U.S. law and afford debtors and unsecured creditors only limited protection from secured creditors. Due to the nature of such insolvency laws and the unsecured nature of the claims of holders of the 2024 IGH Notes against the relevant Guarantors, the ability of holders of the 2024 IGH Notes to protect their interests will be more limited than would be the case under U.S. bankruptcy laws. The lenders under the Senior Secured Term Loans, the lenders under the Schuldschein Loan and the holders of the Senior Secured Notes have first ranking security on substantially all of the assets of IHL and substantially all of the assets of the Guarantors. As a result, after the enforcement of the assets securing the Senior Secured Term Loans, the Schuldschein Loan or the Senior Secured Notes, the Security Trustee, at the request of the senior creditors under the Intercreditor Deed whose senior credit participations constitute the simple majority in aggregate principal amount of the total senior credit participations, will have effective control of and the right to direct the disposition of the assets of IHL and those subsidiaries.

In the event that any one or more of the Senior Secured Notes Issuer, IGH, the Guarantors, any future Guarantors, if any, or any other of our subsidiaries experienced financial difficulty, it is not possible to predict with certainty in which jurisdiction or jurisdictions insolvency or similar proceedings would be commenced, or the outcome of such proceedings. Guarantees and security provided by entities organized in jurisdictions not discussed herein are also subject to material limitations pursuant to their terms, by statute or otherwise. Any enforcement of the guarantees or security after bankruptcy or an insolvency event in such other jurisdictions will be subject to the insolvency laws of the relevant entity's jurisdiction of organization or other jurisdictions. The insolvency and other laws of each of these jurisdictions may be materially different from, or in conflict with, each other, including in the areas of rights of secured and other creditors, the ability to void preferential transfer, priority of governmental and other creditors, ability to obtain post-petition interest and duration of the proceeding. The application of these laws, or any conflict among them, could call into question whether any particular jurisdiction's laws should apply, adversely affect your ability to enforce your rights under the guarantees or the security in these jurisdictions and limit any amounts that you may receive.

Enforcement of civil liabilities—Holders and lenders may not be able to recover in civil proceedings for U.S. securities law violations.

We and most of the Guarantors are companies incorporated outside the United States. Most of our directors and executive officers and the directors and executive officers of the Guarantors are non-residents of the United States. Although we and the Guarantors have submitted in the Indentures to the jurisdiction of certain New York courts in connection with any action under U.S. securities laws, a holder may be unable to effect service of process within the United States on our directors and executive officers or the directors and executive officers of the Guarantors. In addition, as most of our assets and those of our directors and executive officers are located outside of the United States, a holder may be unable to enforce against them judgments obtained in the U.S. courts predicated upon civil liability provisions of the Federal securities laws of the United States. In addition, we have been informed that it is questionable whether certain non-U.S. courts would accept jurisdiction and impose civil liability if proceedings were commenced in such non-U.S. jurisdictions predicated solely upon U.S. Federal securities laws.

Lack of public market—There may not be an active trading market for the Notes, in which case the relevant noteholders' ability to sell their Notes may be limited.

The 2024 IGH Notes, the 2025 Senior Secured Notes and the 2026 Senior Secured Notes are listed on the Official List of the Luxembourg Stock Exchange and traded on the Luxembourg Stock Exchange's Euro MTF Market. Changes in the overall market for high yield securities and changes in our financial performance or in the markets where we operate may adversely affect the liquidity of the trading market in such Notes and the market price quoted for such Notes. As a result, we cannot assure the noteholders that an active trading market will continue for these Notes. If an active trading market were not to exist for any these Notes, the holders of such Notes may not be able to resell such Notes at a fair value, if at all.

Historically, the markets for non-investment grade debt such as the Notes have been subject to disruptions that have caused substantial volatility in their prices. Future trading prices for the Notes will depend on many factors, including, among other things, prevailing interest rates, our operating results and the market for similar securities. The market, if any, for the Notes may be subject to similar disruptions. Any disruptions may have an adverse effect on the holders of the Notes, regardless of our prospects and financial performance. As a result, there is no assurance that there will be an active trading market for the Notes, or that noteholders will be able to resell their holdings of the applicable Notes at a fair value, if at all.

Although the 2024 IGH Notes, the 2025 Senior Secured Notes and the 2026 Senior Secured Notes are listed on the Official List of the Luxembourg Stock Exchange and admitted to trading on the Euro MTF market, we cannot assure holders that such Notes remain listed. Although no assurance is made as to the liquidity of such Notes as a result of the admission to trading on the Euro MTF market, failure to be approved for listing or the delisting of any Notes, as applicable, from the Official List may have a material effect on a holder's ability to resell the such Notes, as applicable, in the secondary market.

In addition, the Indentures allow for the issuance of additional 2024 IGH Notes, 2025 Senior Secured Notes and 2026 Senior Secured Notes in the future which could adversely impact the liquidity of such Notes.

Transfer of the Notes—The transfer of the Notes is restricted.

The 2024 IGH Notes, the 2025 Senior Secured Notes and the 2026 Senior Secured Notes and the guarantees thereof have not been registered under the Securities Act or the securities laws of any jurisdiction and, unless so registered, may not be offered or sold except pursuant to an exemption from, or transaction not subject to, the registration requirements of the Securities Act and any other applicable laws. We have not agreed to or otherwise undertaken to register any of the Notes, and neither we nor the Senior Secured Notes Issuer nor IGH have any intention to do so.

Book-entry interests—Certain considerations relating to book-entry interests.

Unless and until the 2024 IGH Notes, the 2025 Senior Secured Notes or the 2026 Senior Secured Notes, as applicable, in definitive registered form, or definitive registered notes, are issued in exchange for book-entry interests, owners of book-entry interests will not be considered owners or holders of the respective Notes. The common depository for Euroclear and Clearstream (or its nominee) will be the sole holder of the global notes representing the euro-denominated 2024 IGH Notes or Senior Secured Notes, and the custodian for DTC (or its nominee) will be the sole holder of the global notes representing our dollar-denominated 2024 IGH

Notes. After payment to the common depository or the custodian, as applicable, the relevant issuer will have no responsibility or liability for the payment of interest, principal or other amounts to the owners of book-entry interests. Accordingly, owners of book-entry interests must rely on the procedures of DTC, Euroclear or Clearstream, as applicable, and if you are not a participant in Euroclear or Clearstream, on the procedures of the participant through which it owns its interest, to exercise any rights of a holder under the relevant Indenture.

Unlike the holders of the Notes themselves, owners of book-entry interests will not have the direct right to act upon the relevant issuer's solicitations for consents, requests for waivers or other actions from holders of the relevant Notes. Instead, an owner of a book-entry interest will be permitted to act only to the extent it has received appropriate proxies to do so from DTC, Euroclear or Clearstream. There can be no assurance that procedures implemented for the granting of such proxies will be sufficient to enable the owner to vote on any consents, requests for waivers or other actions on a timely basis.

Similarly, upon the occurrence of an event of default under the applicable Indenture, unless and until definitive registered notes are issued in respect of all book-entry interests, an owner of a book-entry interest will be restricted to acting through DTC, Euroclear or Clearstream, as applicable. We cannot assure you that the procedures to be implemented through DTC, Euroclear or Clearstream will be adequate to ensure the timely exercise of rights under the relevant Notes.

Foreign currency exchange risks—A holder may face currency exchange risks by investing in our debt.

Certain portions of our indebtedness are denominated and payable in euro, while other portions are denominated and payable in dollars. If a holder measures its investment returns by reference to a currency other than the currency in which the holder's indebtedness is denominated, investment in such indebtedness entails foreign currency exchange-related risks due to, among other factors, possible significant changes in the value of the dollar or the euro, as applicable, relative to the currency the holder uses to measure its investment returns, caused by economic, political and other factors which affect exchange rates and over which we have no control. Depreciation of the dollar or the euro, as applicable, against the currency by reference to which you measure your investment returns would cause a decrease in the effective yield of the relevant indebtedness below their stated coupon rates and could result in a loss to you when the return on the such indebtedness is translated into the currency by reference to which you measure your investment returns.

Interest rate risks—Certain of our borrowings bear interest at floating rates that could rise significantly, increasing our interest cost and reducing cash flow.

A substantial part of our indebtedness, including borrowings under the Senior Secured Term Loans Agreement and the Schuldschein Loan Agreement, bears or will bear interest at per annum rates equal to EURIBOR, LIBOR and similar benchmarks, in each case adjusted periodically, plus a spread. Furthermore, we may incur additional indebtedness that bears interest at a floating rate. These interest rates could rise significantly in the future, thereby increasing our interest expenses associated with these obligations, reducing cash flow available for capital expenditures and hindering our ability to make payments on our indebtedness.

Changes or uncertainty in respect of LIBOR or other interest rate benchmarks may affect our sources of funding.

Some of our sources of funding are linked to LIBOR or EURIBOR. See "Description of Certain Indebtedness—Senior Secured Term Loans" and "Description of Certain Indebtedness—Schuldschein Loan". Various interest rate benchmarks (including LIBOR) are the subject of recent national and international regulatory guidance and proposals for reform. Some reforms are already effective, including the EU Benchmarks Regulation (Regulation (EU) 2016/1011) (the "**Benchmarks Regulation**"), while others are still to be implemented. In addition, the sustainability of LIBOR has been questioned by the U.K. Financial Conduct Authority ("**FCA**") as a result of the absence of relevant active underlying markets and possible disincentives (including possibly as a result of regulatory reforms) for market participants to continue contributing to such benchmarks. On July 27, 2017, the FCA announced that it will no longer persuade or compel banks to submit rates for the calculation of the LIBOR rates after 2021 (the "**FCA July Announcement**"). In addition, on November 29, 2017, the Bank of England and the FCA announced an initiative to catalyze a broad transition to the Sterling Over Night Index Average rate ("**SONIA**") across sterling bond, loan and derivatives markets so that SONIA is established as the primary sterling interest rate benchmark by the end of 2021 (the "**FCA November Announcement**" and, together with the FCA July Announcement, the "**FCA Announcements**"), which could cause benchmarks such as LIBOR to disappear entirely, to perform differently than in the past (as a result of a change in methodology or otherwise), create disincentives for market participants to continue to

administer or participate in certain benchmarks or have other consequences which cannot be predicted. On April 23, 2018, the Bank of England took over administration of SONIA and issued a series of reforms as part of its implementation as a replacement to LIBOR. From April 2018, the Bank of England has been setting the interest rate benchmark using SONIA. As of July 2019, the FCA expected LIBOR panels to disappear after 2021 and urged companies and firms to be able to run their business without LIBOR from this date and reduce the stock of “legacy” LIBOR contracts. It is not possible to predict the effect of the FCA Announcements, any changes in the methods pursuant to which the LIBOR rates are determined and any other reforms to LIBOR, including to the rules promulgated by the FCA in relation thereto, that will be enacted in the UK and elsewhere, which may adversely affect the loan and bond markets in respect of LIBOR-based debt instruments, or result in the phasing out of LIBOR as a reference rate for debt instruments. In addition, any changes announced by the FCA (including the FCA Announcements), ICE Benchmark Administration Limited as independent administrator of LIBOR or any other successor governance or oversight body, or future change adopted by such body, in the method pursuant to which the LIBOR rates are determined may result in a sudden or prolonged increase or decrease in the reported LIBOR rates.

More generally, any of the above matters or any other significant change to the setting or existence of LIBOR or other interest rate benchmarks could affect the ability of amounts available to us to meet our obligations under our sources of funding and/or could have a material adverse effect on the value or liquidity of, and the amount payable under, our sources of funding. Changes in the manner of administration of LIBOR or other interest rate benchmarks could result in adjustment to the conditions applicable to our sources of funding or other consequences as relevant to our sources of funding including, without limitation, early redemption, discretionary valuation or other consequences. No assurance can be provided that relevant changes will not be made to LIBOR or any other relevant benchmark rate and/or that such benchmarks will continue to exist. Furthermore, under the Senior Secured Term Loans Agreement, the administrative agent and the borrower are required to endeavor to establish an alternate rate of interest to LIBOR in certain circumstances such as when the administrative agent determines that LIBOR is not available or if the supervisor for the administrator of LIBOR or a governmental authority having jurisdiction over the administrative agent publicly announces a specific date after which LIBOR shall no longer be used for determining interest rates for loans denominated in the applicable currency.

The Group may incur additional indebtedness, which indebtedness could increase its leverage and may have terms that are more or less favorable than the terms of the Group’s existing indebtedness.

The Group or its subsidiaries may incur substantial additional debt, including in connection with a refinancing of the Group’s existing debt. In connection with the Group’s financial strategy, the Group continually evaluates different financing alternatives, and the Group may decide to enter into new credit facilities, access the debt capital markets or incur other indebtedness from time to time. Any such offering or incurrence of debt will be made at the Group’s election or the election of its relevant subsidiaries, and if such debt is in the form of securities, would be offered and sold pursuant to, and on the terms described in, an offering memorandum. The interest rate with respect to any such additional debt will be set at the time of the pricing or incurrence of such debt and may be less than or greater than the interest rate applicable to the Group’s existing debt, including, in the case of a refinancing, the debt that is being refinanced, which would have a corresponding effect on the Group’s cash interest expense on a pro forma basis. In addition, the maturity date of any such additional debt will be set at the time of pricing or incurrence of such debt and may be earlier or later than the maturity date of the Group’s existing debt. The other terms of such additional debt would be as agreed with the relevant lenders or holders thereof and could be more or less favorable than the terms of the Group’s existing indebtedness. There can be no assurance that the Group will elect to raise any such additional debt or that any effort to raise such debt will be successful, and there can be no assurance as to the timing of such offering or incurrence, the amount or terms of any such additional debt. If the Group incurs new debt in addition to its current debt, the related risks that the Group now faces, even in a refinancing transaction, as described above and elsewhere in these “Risk Factors,” could intensify. If we are unable to obtain new debt financing as needed, we would have to consider other options, such as selling assets; restructuring all or a portion of our debt before maturity; obtaining additional equity capital; foregoing opportunities such as acquisitions; or reducing or delaying our business activities and capital investments.

SELECTED FINANCIAL INFORMATION

The following table sets forth selected historical consolidated financial information for INEOS Group Holdings S.A. for the years ended December 31, 2019, December 31, 2018 and December 31, 2017.

	At or for the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Income Statement:			
Revenue	13,705.0	16,091.5	15,210.4
Cost of sales	(11,774.4)	(13,665.8)	(12,524.2)
Gross profit	1,930.6	2,425.7	2,686.2
Distribution costs	(229.7)	(215.0)	(206.5)
Administrative expenses	(489.1)	(392.1)	(418.6)
Operating profit	1,211.8	1,818.6	2,061.1
Total share of profit/(loss) of associates and joint ventures using the equity accounting method	67.0	(66.6)	143.5
Profit on disposal of fixed assets	-	-	2.6
Profit on disposal of investments	2.6	-	-
Profit before net finance costs	1,281.4	1,752.0	2,207.2
Net finance (costs)/income	(341.8)	(277.8)	92.6
Profit before tax	939.6	1,474.2	2,299.8
Tax charge	(216.3)	(278.9)	(301.5)
Profit for the year	723.3	1,195.3	1,998.3
Other Financial Data:			
EBITDA before exceptionals ⁽⁴⁾	1,945.1	2,287.8	2,529.4
Depreciation, amortization and impairment	685.2	469.2	468.3
Capital expenditures ⁽¹⁾	1,380.0	1,173.5	914.6
Total Indebtedness ⁽²⁾	6,887.3	6,331.9	6,193.0
Net debt ⁽³⁾	5,904.4	4,260.6	4,826.7

- (1) Capital expenditures represents payments to acquire property, plant and equipment as recorded on the consolidated cash flow statements.
- (2) Total debt represents long-term debt plus short-term debt, excluding lease liabilities (2018 and 2017 including finance lease obligations) before deduction of unamortized debt issuance costs. Under IFRS, debt issuance costs are deducted from the related debt amounts for the purposes of balance sheet presentation and are amortized over the life of the debt.
- (3) Net debt represents total debt less cash and cash equivalents.
- (4) EBITDA before exceptionals represents operating profit before depreciation, amortization, impairment and exceptional charges. In accordance with IFRS, we use both the FIFO and weighted average cost methods of accounting for purposes of determining our inventory cost in connection with the preparation of our audited annual consolidated financial information. EBITDA before exceptionals is based on the FIFO and weighted average cost methods of accounting for inventory used in connection with the preparation of such financial information. EBITDA before exceptionals is derived from income statement line items calculated in accordance with IFRS on a historical cost basis. Although our EBITDA-based measures should not be considered a substitute measure for operating profit, profit, cash flows from operating activities or other measures of performance as defined by IFRS, we believe that they provide useful information regarding our ability to meet future debt service requirements. The EBITDA measure presented may not be comparable to similarly titled measures used by other companies.

The reconciliation of INEOS' operating profit to EBITDA before exceptionals is as follows:

	Year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Operating profit	1,211.8	1,818.6	2,061.1
Depreciation, amortization and impairment	685.2	469.2	468.3
Exceptional charges	48.1	-	-
EBITDA before exceptionals	1,945.1	2,287.8	2,529.4

Use of Non-GAAP Financial Measures

We have presented certain information in this annual report based on non-GAAP measures. As used in this annual report, this information includes “EBITDA before exceptionals”.

- **EBITDA before exceptionals** represents operating profit before depreciation, amortization, impairment and exceptional charges. In accordance with IFRS, we use both the first in first out (“FIFO”) and weighted average cost methods of accounting for purposes of determining our inventory cost in connection with the preparation of our audited annual consolidated financial information. EBITDA before exceptionals is based on the FIFO and weighted average cost methods of accounting for inventory used in connection with the preparation of such financial information. EBITDA before exceptionals is derived from income statement line items calculated in accordance with IFRS on historical cost basis.

EBITDA before exceptionals, is not a measure of financial performance under IFRS. EBITDA-based measures are non-GAAP measures. We believe that the presentation of EBITDA-based measures enhances an investor’s understanding of our financial performance. However, EBITDA-based measures should not be considered in isolation or viewed as a substitute for operating profit, profit, cash flows from operating activities or other measures of performance as defined by IFRS. These EBITDA-based measures, as used herein, are not necessarily comparable to other similarly titled captions of other companies due to potential inconsistencies in the method of calculation. Our management has used, and expects to use, EBITDA-based measures to assess operating performance and to make decisions about allocating resources among our various segments. In assessing our overall performance and the performance of each of our segments, management reviews EBITDA-based measures as a general indicator of performance compared to prior periods. Furthermore, management and employee bonuses can be linked to the EBITDA-based performance of the business and the region in which they work. Our EBITDA-based measures exclude items that management does not consider in assessing operating performance. Our management believes it is useful to eliminate such items because it allows management to focus on what it considers to be a more meaningful indicator of operating performance and ability to generate cash flow from operations.

The information presented by EBITDA before exceptionals is unaudited and has not been prepared in accordance with IFRS or any other accounting standards. In addition, the presentation of this measure is not intended to and does not comply with the reporting requirements of the SEC; compliance with its requirements would require us to make changes to the presentation of this information.

Presentation

Rounding adjustments have been made in calculating some of the financial information included in this annual report. Figures shown as totals in some tables and elsewhere may not be exact arithmetic aggregations of the figures that precede them.

In this annual report, unless otherwise indicated: all references to the “EU” are to the European Union; all references to “euro” or “€” are to the lawful currency of the European Union; all references to the “U.K.” are to the United Kingdom; all references to “pounds sterling,” “sterling,” “Sterling,” “British pounds” or “£” are to the lawful currency of the United Kingdom; all references to the “United States” or the “U.S.” are to the United States of America; and all references to “U.S.\$,” “U.S. dollars,” “dollars” or “\$” are to the lawful currency of the United States.

OPERATING AND FINANCIAL REVIEW AND PROSPECTS

This summary highlights selected information contained elsewhere in this annual report. It is not complete and does not contain all the information that you should consider before investing in the notes. The following summary should be read in conjunction with and is qualified in its entirety by the more detailed information included elsewhere in this annual report. You should read the entire annual report, including the more detailed information in the financial information and the related notes included elsewhere in this annual report, before making an investment decision. See the section entitled “Risk Factors” for factors that you should consider before investing in the notes and the section entitled “Forward-Looking Statements” for information relating to the statements contained in this annual report that are not historical facts.

Overview

Combined Business

We are one of the world’s largest chemical companies as measured by revenue. Our business has highly integrated, world-class chemical facilities and production technologies. We have leading global market positions for a majority of our key products and a strong and stable customer base. We operate 32 manufacturing sites in six countries throughout the world. We are led by a highly experienced management team with, on a combined basis, over 100 years of experience in the chemical industry. As of December 31, 2019, our total chemical production capacity was approximately 22,300 kta, of which 56% was in Europe and 44% was in North America.

We operate our business through three segments: Olefins & Polymers Europe, Olefins & Polymers North America and Chemical Intermediates. The products we manufacture are derived from crude oil and natural gas, and include olefins, polymers and various petrochemical products directly or indirectly derived from olefins. Our products serve a broad and diverse range of end markets, including packaging, construction, automotive, white goods/durables, agrochemicals and pharmaceuticals.

Our highly integrated, world class production facilities and technological know how allow us to process raw materials into higher value-added products. In Europe we own two sites integrated with crackers and polymer units. Typically, these two sites account for approximately 76% of our European olefin and polymer volumes. The polyolefins plants on our two major sites in Europe receive more than 95% of their feedstock supply from our integrated crackers. Similarly, in the United States, much of our olefin feedstock requirements for our polymer business is supplied by either our Chocolate Bayou cracker in Texas or by integrated third party facilities, such as the Tesoro facility in Carson, California. We believe that with our highly integrated facilities we are able to capture attractive margins across the value chain, enjoy greater certainty of feedstock supply, reduce logistical costs, improve energy management and optimize our product slate.

We benefit from the cost advantages of operating large scale, well invested, highly integrated facilities strategically located near major transportation facilities and customer locations. Since January 1, 2007, we have invested approximately €7.8 billion (including investments in divested assets) in our production facilities to ensure that they operate efficiently, resulting in integrated, and state of the art production units. We believe these investments allow us to operate at lower cost and higher utilization rates than most of our competitors, and enable us to maintain positive margin and cash flows even during downturns in industry cycles or customer demand. For the year ended December 31, 2019, our revenue was €13.7 billion and our EBITDA before exceptionals was €1.9 billion.

Over the past several years, we have implemented a range of strategic initiatives designed to lower our operating costs, increase our profitability and further enhance our market position. These include fixed asset investments to expand our capacity in higher value products, to enhance productivity at our existing facilities, and to reduce our fixed cost structure through headcount reductions, production line closures and system upgrades. In addition, we have shifted our product portfolio to focus on more differentiated products, exited low-margin businesses and implemented premium pricing strategies designed to improve our margins. We believe these initiatives provide us with a strong platform to drive growth, create significant operating leverage and position us to benefit from volume recovery in our end markets.

Since April 1998, when INEOS was established with the acquisition of the Belgian “Oxide” assets from Inspec plc, we have significantly expanded, both through a series of strategic acquisitions of businesses and assets from major chemical companies, and through organic growth. The combination of INEOS and

Innovene in December 2005 represented a transformational milestone for our company, providing global scale and further upstream integration.

In 2011, we transferred our Refining Business, our Entrepreneurial (Refining) Business and certain infrastructure assets to three joint ventures outside the INEOS Group. Please see “Business—Refining Divestiture, Grangemouth Divestiture and Lavéra Divestiture—The Refining Divestiture” for a further description of the disposal of our Refining Business and Entrepreneurial (Refining) Business.

On October 1, 2013, we completed the Grangemouth Divestiture to a newly created subsidiary of INEOS Holdings AG, our indirect parent company. See “Business—Refining Divestiture, Grangemouth Divestiture and Lavéra Divestiture—The Grangemouth Divestiture.”

On July 1, 2014 we divested the olefins and polymers assets and Chemical Intermediates assets of the Lavéra site. See “Business—Refining Divestiture, Grangemouth Divestiture and Lavéra Divestiture—The Lavéra Divestiture.”

In 2015 we completed the purchase of the remaining 50% interest in the Noretyl ethylene cracker at Rafnes, Norway from the INOVYN group (formerly the Kerling Group), a related party. In 2015 we also acquired aromatics and cumene assets from Axiall Corporation. The acquisition comprised the world’s largest cumene plant in Pasadena, Texas. In addition, Axiall’s phenol, acetone and alpha-methylstyrene business was transferred to the INEOS phenol facility at Mobile, Alabama.

In 2016 the Group acquired 100% of the shares of WLP Holding Corporation, one of the largest high-density polyethylene (HDPE) pipe manufacturers in North America. Moreover, in 2016, following a strategic review of the INEOS Technologies business, we decided to cease marketing its polyolefins licensing technology externally and to transfer the remaining parts of the INEOS Technologies business to existing businesses within the Group to provide a clearer focus on individual product lines.

In 2019 the Group acquired a shale oil and gas business located in the Giddings Field in Texas, USA as well as the INESCO combined heat and power plant at the Antwerp site in Belgium.

Key Factors Affecting Our Results of Operation

Our results of operations are driven by a combination of factors affecting the petrochemical and chemical intermediate markets generally, including general economic conditions, prices of raw materials, global supply and demand for our products and environmental legislation, including climate change initiatives. Our results of operations are also impacted by company-specific structural and operational factors. Set forth below is an overview of the key drivers that have affected the historical results of operations, and are expected to affect our future results of operations.

Supply and Demand in the Petrochemical Industry

Margins in the petrochemical industry are strongly influenced by industry utilization. As demand for petrochemical products approaches available supply, utilization rates rise, and prices and margins typically increase. Historically, this relationship has been highly cyclical due to fluctuations in supply resulting from the timing of new investments in capacity and general economic conditions affecting the relative strength or weakness of demand. Generally, capacity is more likely to be added in periods when current or expected future demand is strong and margins are, or are expected to be, high. Investments in new capacity can result, and in the past frequently have resulted, in overcapacity, which typically leads to a reduction of margins. In response, petrochemical producers typically reduce capacity or limit further capacity additions, eventually causing the market to be relatively undersupplied.

Nexant's current analysis of the global supply and demand for ethylene indicates that the rate of capacity addition will slightly exceed consumption growth in the near term, reducing the global operating rate from 90% in 2019 to 84% in 2024. This reflects the expected completion of several large new crackers in the United States, and in East Asia. Nevertheless, the rate of margin recovery in the petrochemical industry is highly dependent on the actual speed of global macro-economic growth. In addition to the global petrochemical cycle, margins are also susceptible to potentially significant swings in the short term. This volatility, which may be global or isolated in individual regions, can be caused by a number of factors, including fluctuations in utilization rates due to planned or unplanned plant outages, political and economic conditions driving rapid changes in prices for key feedstocks, exchange rate fluctuations and changes in inventory management policies by petrochemical customers (such as inventory building or de stocking in periods of expected price increases).

Asset Utilization

Our results of operations are materially influenced by the degree to which we utilize our assets in order to achieve maximum production volumes. As a low-cost producer, we believe in operating our facilities at full capacity. We believe this allows us to maintain positive margins and cash flows, even during downturns in industry cycles or customer demand, more readily than some of our competitors who have higher production costs. We intend to achieve growth in production volume by improving utilization rates within the defined availability of an asset, improving availability of an asset by minimizing planned and unplanned facility downtime and improving capacity of an asset through de-bottlenecking projects.

For example, the number and length of turnarounds (scheduled outages of a unit in order to perform necessary inspections and testing to comply with industry regulations and to permit us to carry out any maintenance activities that may be necessary) carried out in any given period can impact operating results. When possible, we seek to schedule the timing of turnarounds to coincide with periods of relatively low demand for the products of the relevant units. Olefins crackers typically undergo major turnarounds every four or five years, with each turnaround lasting four to six weeks. Turnarounds for polymers and derivatives units are more frequent, typically every one to two years, but generally last only seven to 10 days. Likewise, unplanned outages, such as the impact of Hurricane Ike in autumn 2008 and Hurricane Harvey in autumn 2017, the lightning strike at the Chocolate Bayou site in November 2010 and the power outage at the Rafnes, Norway site resulting in a fire in October 2016, can impact our operating results, even if such outages are covered by insurance. Similarly, planned or unplanned outages of our competitors can positively affect our operating results by decreasing the supply of product in the market.

Oil and Gas Price Movements

Feedstock costs are a significant component of the operating costs of our petrochemical business. The costs of the feedstocks we require to make our petrochemical products (naphtha, ethane, butane and propane) are principally driven by the price of oil and natural gas. According to the U.S. Energy Administration, the spot price for Brent crude oil decreased from approximately \$92 per barrel in January 2008 to approximately \$67 per barrel in December 2019, while the natural gas Citygate price in Texas decreased from \$8.23 per thousand cubic feet in January 2008 to \$4.33 per thousand cubic feet in December 2019. During 2019 the crude oil price increased through the first five months of year before falling throughout the rest of the year to finish at approximately \$67 per barrel as compared to approximately \$57 per barrel at the end of 2018. The average price of crude oil, and thus the price of petrochemical products, decreased to an average of approximately \$65 per barrel in 2019 as compared to an average of approximately \$71 per barrel for the year ended December 31, 2018.

Our ability to pass on price increases for crude is limited due to the impact of time lags resulting from the repricing intervals of our contracts with suppliers and customers, particularly in the petrochemical business. While most of our feedstock contracts reprice daily, our contracts with customers generally reprice on a monthly basis. A further limitation is that many of our customers take advantage of fluctuating prices by building inventories when they expect product prices to increase and reducing inventories when they expect prices to decrease. The effect of these time lags and our customers' inventory management policies on our ability to pass through feedstock price increases is magnified in periods of high volatility. In addition, changes in oil and gas prices have a direct impact on our working capital levels. In general, increases in feedstock prices lead to an increase in our working capital and decreases in feedstock prices lead to a decrease in our working capital.

Implementation of Cost Reduction

We have historically focused on implementing our strategies of reducing costs by making rapid reductions in underlying fixed costs and implementing an efficient corporate and management structure and maximizing the utilization of our assets. Our ability to continue to reduce costs will impact, among other things, our profitability and capacity plans.

Debt Structure

As of December 31, 2019, we had €6,887.3 million (December 31, 2018: €6,331.9 million) of indebtedness. Our future results of operations, and in particular our net finance charges, will be significantly affected by the amount of indebtedness, including the interest we pay on our indebtedness. The servicing of this indebtedness will impact, among other things, our cash flows and our cash balance.

In April 2019 the Group issued €770 million Senior Secured Notes due 2026. The proceeds of the refinancing were used to redeem in full the €770 million Senior Secured Notes due 2023 on May 1, 2019.

On February 28, 2017, the Group completed a refinancing of the Senior Secured Term Loans. The Term Loans due 2018 were repaid in full, the Term Loans due 2020 were extended to March 2022 and a new tranche of €1.4 billion Term Loans due 2024 (in both euro and dollar amounts) were issued. On March 1, 2017 the Group redeemed in full the 2019 IGH Notes with the proceeds from the issuance of the Term Loans due 2024.

In November 2017 the Group issued new Senior Secured Term Loans due 2024 (in both euro and dollar amounts) and new 2025 Senior Secured Notes. The proceeds from the issuances (together with cash received from INEOS Styrolution) were used to repay the outstanding Senior Secured Term Loans due 2022 and 2024.

Foreign Exchange Rate Fluctuations

Our results of operations may be affected by both the transaction effects and translation effects of foreign currency exchange rate fluctuations. A substantial portion of our revenue is generated in, or linked to, the U.S. dollar and euro. In our European petrochemical business, product prices, certain feedstock costs and most other costs are denominated in euro and British pounds. In our U.S. petrochemical and chemical intermediates businesses, product prices, raw material costs and most other costs are primarily denominated in U.S. dollars. We generally do not enter into foreign currency exchange instruments to hedge our foreign currency exposure, although we have done so in the past and we may do so in the future. We also believe that we benefit from natural hedging to the extent that we have been able to match the currencies of our cash flows and long-term indebtedness.

Our reporting currency is the euro, and our results of operations will be impacted by the relative strength of the euro against other currencies, including the U.S. dollar and the British pound. In 2014, the value of the euro relative to the U.S. dollar declined significantly. In 2016, the value of the euro relative to the U.S. dollar remained similar to 2015 levels, then increased significantly by the end of 2017 before increasing again during 2018 and decreasing during 2019. Following the U.K. referendum regarding the EU, the respective values of the euro and the U.S. dollar relative to the British pound increased significantly.

Environmental Considerations

Our results of operations are affected by environmental laws and regulations, including those relating to GHG and other air emissions, and environmental risks and goals generally. We have invested, and will continue to invest, a significant amount of financial and technical resources in order to achieve and maintain compliance with environmental requirements. From time to time, we also incur remediation and decommissioning costs at our current and former production facilities, as well as at other locations.

Environmental considerations can also impact the markets in which we operate, including our position with respect to our competitors.

Results of Operations

The consolidated financial information of INEOS is prepared in accordance with IFRS. The income statement data for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 represent the consolidated results of the Company.

Description of Key Line Items

Set forth below is a brief description of the composition of the key line items of our consolidated income statement accounts:

- *Revenue.* Group revenue represents the invoiced value of products sold or services provided to third parties net of sales discounts and value-added taxes. It also excludes our share of joint venture revenue. The pricing for products sold is determined by market prices (market contracts and arrangements) or is linked by a formula to published raw material prices plus an agreed additional amount (formula contracts). Services provided to third parties include administrative and operational services provided to other chemical companies with units on our sites, and services under tolling arrangements. Under tolling arrangements, customers pay for or provide raw materials to be converted into a certain specified product, for which we charge a toll fee.
- *Cost of sales.* Cost of sales includes fixed and variable production costs. Such production costs typically include the costs of raw materials, packaging, utilities, direct wages and salaries, repairs and maintenance, waste disposal and effluent treatment, consumables, attributable depreciation charges and directly attributable overheads, including wages and salaries, depreciation charges and overheads that are attributable to production. Fixed costs included in the cost of sales are rent, depreciation, repairs and maintenance, while variable costs include raw materials, packaging, consumables and wages and salaries.
- *Distribution costs.* Distribution costs typically include the costs of warehousing, carriage and freight, together with sales and distribution wages and salaries and depreciation on property, plant and equipment used for sales and distribution.
- *Administrative expenses before exceptional items.* Administrative expenses typically include indirect wages and salaries and indirect overheads. Indirect overheads would include such items as insurance costs, legal and professional fees and office supplies. Administrative expenses also include the depreciation of property, plant and equipment not directly attributable to production or sales and distribution.
- *Exceptional administrative expenses.* Exceptional administrative expenses are those expenses which, because of their size or nature, are disclosed to give a proper understanding of the underlying results for the period. These expenses are mainly related to business restructuring and the provision for severance payments.
- *Share of profit/(loss) of associates and joint ventures using the equity accounting method.* Share of profit/(loss) of associates and joint ventures using the equity accounting method relates to the results from the investment in associated undertakings and joint ventures.
- *Total finance income.* Total finance income includes interest receivable on funds invested, expected return on defined benefit pension plan assets, net fair value gain on derivatives and net foreign exchange gains.
- *Finance costs before exceptional items.* Finance costs includes interest payable, finance charges on finance leases, unwinding of the discount on provisions, net fair value losses derivatives and net foreign exchange losses.
- *Exceptional finance costs.* Exceptional finance costs are those costs which, because of their size or nature, are disclosed to give a proper understanding of the underlying results for the period. These costs are mainly related to call premia and the write-off of unamortized debt issue costs following modification or redemption of debt.

Consolidated Results

The following table sets forth, for the periods indicated, revenue and expenses and such amounts as a percentage of revenue:

INEOS Group Holdings S.A.						
For the year ended December 31,						
	2019		2018		2017	
	€m	%	€m	%	€m	%
Revenue	13,705.0	100.0	16,091.5	100.0	15,210.4	100.0
Total cost of sales	(11,774.4)	(85.9)	(13,665.8)	(84.9)	(12,524.2)	(82.3)
Gross profit	1,930.6	14.1	2,425.7	15.1	2,686.2	17.7
Distribution costs	(229.7)	(1.7)	(215.0)	(1.3)	(206.5)	(1.4)
Administrative expenses before exceptional items.....	(441.0)	(3.2)	(392.1)	(2.4)	(418.6)	(2.8)
Exceptional administrative expenses	(48.1)	(0.4)	-	-	-	-
Operating profit	1,211.8	8.8	1,818.6	11.3	2,061.1	13.6
Share of profit/(loss) of associates and joint ventures using the equity accounting method	67.0	0.5	(66.6)	(0.4)	143.5	0.9
Profit on disposal of investments	2.6	0.0	-	-	-	-
Profit on disposal of fixed assets.....	-	-	-	-	2.6	-
Profit before finance costs	1,281.4	9.3	1,752.0	10.9	2,207.2	14.5
Total finance income.....	91.0	0.7	117.3	0.7	491.9	3.2
Finance costs before exceptional item	(421.1)	(3.1)	(395.1)	(2.5)	(355.2)	(2.3)
Exceptional finance costs.....	(11.7)	(0.1)	-	-	(44.1)	(0.3)
Profit before tax	939.6	6.9	1,474.2	9.2	2,299.8	15.1
Tax charge.....	(216.3)	(1.6)	(278.9)	(1.7)	(301.5)	(2.0)
Profit after tax	723.3	5.3	1,195.3	7.4	1,998.3	13.1

Year Ended December 31, 2019 Compared With Year Ended December 31, 2018

Consolidated

Revenue. Revenue decreased by €2,386.5 million, or 14.8%, to €13,705.0 million for the year ended December 31, 2019 as compared to €16,091.5 million for the year ended December 31, 2018. The fall in revenues was driven primarily by a fall in selling prices which followed the fall in crude oil prices which decreased to an average of \$64/bbl for the year ended December 31, 2019 as compared to \$71/bbl in the same period in 2018. In addition, sales volumes for the Nitriles business decreased significantly as a result of the unscheduled outages of the Green Lake and Seal Sands facilities during the second half of 2019.

Cost of sales. Cost of sales decreased by €1,891.4 million, or 13.8%, to €11,774.4 million for the year ended December 31, 2019 as compared to €13,665.8 million for the year ended December 31, 2018. The fall in cost of sales is largely due to the fall in crude oil prices, which has meant lower feedstock prices.

Gross profit. Gross profit decreased by €495.1 million, or 20.4%, to €1,930.6 million for the year ended December 31, 2019 as compared to €2,425.7 million for the year ended December 31, 2018. The decrease in profitability was primarily driven by lower margins and higher inventory holding losses. Margins in the O&P Europe segment declined due to weaker market conditions, with lower underlying market demand and increased competition from higher levels of imports. Margins in O&P North America were adversely impacted by increased industry supply of polymers. There was also a decrease in gross profit due to greater inventory holding losses within the O&P segments, which were losses of approximately €56 million in the year ended December 31, 2019, as compared to inventory holding losses of approximately €26 million in the same period in 2018. The Nitriles business experienced a decrease in volumes of approximately 27% in 2019 as compared to 2018 due to a combination of the unscheduled outages at the Green Lake and Seal Sands facilities and weaker demand from a subdued automotive sector and pressure on acrylic fibres from competing fibres such as cotton and polyester. The margins in the Oxide business were eroded by cheaper imports from the USA and Asia which put downward pressure on margins. Partially offsetting these decreases was the increased profitability of the Oligomers business, primarily due to higher margins as the business managed to maintain price levels whilst experiencing lower feedstock prices.

Distribution costs. Distribution costs increased by €14.7 million, or 6.8%, to €229.7 million for the year ended December 31, 2019 as compared to €215.0 million for the year ended December 31, 2018. The increase in distribution costs reflects additional tankage expenditure in support of the LAO expansion project for the Oligomers business and increased transportation costs in the Oxide business as a result of more specialised products being sold in the year.

Administrative expenses before exceptional items. Administrative expenses before exceptional items increased by €48.9 million, or 12.5%, to €441.0 million for the year ended December 31, 2019 as compared to €392.1 million for the year ended December 31, 2018. The increase in administrative expenses is primarily due to an increase in research and development costs and a fall in other operating income for the year ended December 31, 2019 as compared to the same period in 2018. In addition, the appreciation of the US dollar by approximately 5% against the euro in the year ended December 31, 2019 as compared to the same period in 2018 has increased the reported euro expenses of the US businesses.

Operating profit. Operating profit decreased by €606.8 million, or 33.4%, to €1,211.8 million for the year ended December 31, 2019 as compared to €1,818.6 million for the year ended December 31, 2018.

Share of profit/(loss) of associates and joint ventures using the equity accounting method. Share of profit/(loss) of associates and joint ventures using the equity accounting method was a profit of €67.0 million for the year ended December 31, 2019 as compared to a loss of €66.6 million for the year ended December 31, 2018. The share of profit/(loss) primarily reflects our share of the results of the Refining joint venture with PetroChina. The European refining market has seen margins strengthen in the year ended December 31, 2019 as compared to the same period in 2018.

Profit on disposal of investments. Profit on disposal of investments was €2.6 million for the year ended December 31, 2019. The profit on disposal related to the repayment of the Group's preferential interest in INEOS Investments Partnership following the sale by INEOS Investments Partnership of its assets (shares in PQ Corporation) to INEOS Limited, a related party for \$296.5 million (€260.5 million).

Profit before net finance costs. Profit before net finance costs decreased by €470.6 million, or 26.9%, to €1,281.4 million for the year ended December 31, 2019 as compared to €1,752.0 million for the year ended December 31, 2018.

Finance income. Finance income decreased by €26.3 million, or 22.4%, to €91.0 million for the year ended December 31, 2019 as compared to €117.3 million for the year ended December 31, 2018. The decrease is largely due to lower foreign exchange gains associated with short term intra group funding which was a gain of €6.8 million for the year ended December 31, 2019, as compared to a gain of €15.3 million for the year ended December 31, 2018. The year ended December 31, 2018 also included a full year of interest income on the Group's investment in INEOS Investments Partnership which was disposed by the Group in March 2019. In addition, the Group had net fair value gains on derivatives for the year ended December 31, 2018 of €12.8 million compared to net fair value losses for the year ended December 31, 2019.

Finance costs before exceptional item. Finance costs before exceptional item increased by €26.0 million, or 6.6%, to €421.1 million for the year ended December 31, 2019 as compared to €395.1 million for the year ended December 31, 2018. The increase in finance costs reflects an increase in net fair value losses on derivatives, which was a loss of €95.4 million for the year ended December 31, 2019, as compared to net fair value gains for the year ended December 31, 2018. In addition, the Group applied IFRS 16 for the first time on January 1, 2019 which introduced a single, on-balance sheet lease accounting model for lessees resulting in an additional interest charge of €48.5 million for the year ended December 31, 2019. Partially offsetting this increase was a decrease in foreign exchange losses associated with short term intra group funding which was a loss of €21.1 million for the year ended December 31, 2019, as compared to a loss of €148.3 million for the year ended December 31, 2018.

Exceptional finance costs. Exceptional finance costs were €11.7 million for the year ended December 31, 2019. In April 2019 following the early redemption of the Senior Secured Notes due 2023, an exceptional finance cost of €11.7 million was recognised which included an early prepayment premium of €7.7 million and the write-off of deferred issue costs associated with the redeemed Notes of €4.0 million.

Profit before tax. Profit before tax decreased by €534.6 million, or 36.3%, to €939.6 million for the year ended December 31, 2019 as compared to €1,474.2 million for the year ended December 31, 2018.

Tax charge. Tax charge decreased by €62.6 million, or 22.4%, to a charge of €216.3 million for the year ended December 31, 2019 as compared to a charge of €278.9 million for the year ended December 31, 2018. The decrease in tax charge was primarily due to the decreased profitability of the Group. The effective tax rates for the Group for the years ended December 31, 2019 and December 31, 2018 were lower than the standard rate in Luxembourg of 24.94% (2018: 26.01%) as profits were made in regions with significantly lower rates (such as UK and Switzerland) which more than offset profits made in regions with higher rates than the standard rate (such as Germany and Belgium).

Profit after tax. Profit after tax decreased by €472.0 million, or 39.5%, to €723.3 million for the year ended December 31, 2019, as compared to €1,195.3 million for the same period in 2018.

Business Segments

The Group reports under three business segments: O&P North America, O&P Europe and Chemical Intermediates.

The following table provides an overview of the historical revenue and EBITDA before exceptionals of each of the business segments for the periods indicated:

	For the year ended December 31,	
	2019	2018
<i>Revenue</i>		
Continuing operations		
O&P North America.....	3,200.8	4,044.1
O&P Europe	5,861.9	6,388.8
Chemical Intermediates	6,486.8	7,855.0
Eliminations.....	<u>(1,844.5)</u>	<u>(2,196.4)</u>
	<u>13,705.0</u>	<u>16,091.5</u>
<i>EBITDA before exceptionals</i>		
Continuing operations		
O&P North America.....	726.8	798.0
O&P Europe	591.4	671.7
Chemical Intermediates	<u>626.9</u>	<u>818.1</u>
	<u>1,945.1</u>	<u>2,287.8</u>

O&P North America

Revenue. Revenue in the O&P North America segment decreased by €843.3 million, or 20.9%, to €3,200.8 million for the year ended December 31, 2019, as compared to €4,044.1 million for the year ended December 31, 2018. The decrease was driven primarily by lower prices across all product lines. The weighted average sales price for the whole business was approximately 23% lower in the year ended December 31, 2019 as compared to the same period in 2018, driven primarily by the average olefins sales price which decreased by approximately 34% over the same period. Sales volumes for the year ended December 31, 2019 decreased by approximately 2% compared with the year ended December 31, 2018 driven by lower olefin and pipe sales, partially offset by higher polyethylene sales. The olefin sales volume reduction was mainly driven by lower propylene volumes, whilst lower pipe sales were mainly due to a weaker oil and gas market in 2019. The offsetting increase in polyethylene sales were predominately due to higher production levels from the Gemini HDPE joint venture. Partially offsetting the overall decrease in revenues was the appreciation of the US dollar by approximately 5% against the euro in 2019 as compared to 2018, which has increased reported euro revenues.

EBITDA before exceptionals. EBITDA before exceptionals in the O&P North America segment decreased by €71.2 million, or 8.9%, to €726.8 million for the year ended December 31, 2019, as compared to €798.0 million for the year ended December 31, 2018. The business has continued to benefit from its flexibility to be able to utilise cheaper NGL feedstocks to maintain margins. Ethylene markets remained long in 2019, with increased industry supply availability impacting margins. Polymer demand was generally stable, but increased supply led to some margin erosion during 2019. The lower overall margins for the year ended December 31, 2019 as compared to the year ended December 31, 2018 were driven primarily by lower polyethylene and polypropylene margins, which were partially offset by higher olefins margins. Polyethylene margin reductions were mainly due

to increased industry supply, whilst higher olefins margins were mainly due to some supply disruptions during the second half of 2019 and increasing derivatives demand. There were inventory holding losses of approximately €43 million for the year ended December 31, 2019, as compared to inventory holding losses of approximately €28 million in the same period in 2018.

O&P Europe

Revenue. Revenue in the O&P Europe segment decreased by €526.9 million, or 8.2%, to €5,861.9 million for the year ended December 31, 2019, as compared to €6,388.8 million for the year ended December 31, 2018. The decrease in revenue was primarily driven by lower selling prices for the year ended December 31, 2019 as compared to the same period in 2018. The decrease in revenues for the business was driven by the general price environment which was lower in 2019 as compared to 2018 as crude oil prices fell to an average of \$64/bbl for the year ended December 31, 2019 as compared to an average of \$72/bbl for the year ended December 31, 2018, which led to a fall in prices across a number of product lines. The butadiene market sentiment was bearish as customers felt the lack of competitiveness compared to Asian prices. The market was also globally weak, influenced by low levels of automotive market demand and in the fourth quarter of 2019 other application markets also started to weaken. The raffinate 1 price showed the second highest price decrease at approximately 11%. This was due to product prices being linked to naphtha, which fell by approximately 16%. The propylene price showed a decrease of approximately 8%. This market was also influenced by a weak downstream market with toluene decreasing approximately 7% and benzene falling approximately 6% the year ended December 31, 2019 as compared to the same period in 2018.

EBITDA before exceptionals. EBITDA before exceptionals in the O&P Europe segment decreased by €80.3 million or 11.9% to €591.4 million for the year ended December 31, 2019, as compared to €671.7 million for the year ended December 31, 2018. This decrease was primarily due to lower margins, lower inventory holding gains and higher fixed costs. Margins were lower in the year ended December 31, 2019 as compared to the same period in 2018 due to the margins of the Koln cracker decreasing as the ethylene-naphtha spread narrowed. In addition, the butadiene business experienced a loss in margin, reflecting global bearish demand due to the weaker automotive sector and other applications. In contrast, the benzene business benefitted from improved market demand, allowing it to improve its margin relative to the year ended December 31, 2018. Polymers had a reduction in margins due to the influence of increasing price competition as a result of rising imports from the USA. The lower margins were partially offset by the benefit of additional margins from the Trading & Shipping business, as volumes increased in the year ended December 31, 2019 as compared to the same period in 2018. Fixed costs were higher in the year ended December 31, 2019 as compared to the same period in 2018, primarily due to the additional costs within the Trading & Shipping business due to increased terminal and shipping capacities as a result of the startup of the Mariner East 2 pipeline and LPG terminal and the commencement of the first VLEC vessel time charter during the year. In addition, there were higher fixed costs associated with the development of the new cracker project in Antwerp and higher maintenance costs at the Koln site as a result of a power outage in 2019. The business results were also adversely impacted by an increase in inventory holding losses, which were approximately €13 million in the year ended December 31, 2019 as compared to holding gains of approximately €2 million in the year ended December 31, 2018.

Chemical Intermediates

Revenue. Revenue in the Chemical Intermediates segment decreased by €1,368.2 million, or 17.4%, to €6,486.8 million for the year ended December 31, 2019, as compared to €7,855.0 million for the year ended December 31, 2018. Revenues for the Phenol business decreased in the year ended December 31, 2019 as compared to the same period in 2018, driven by both lower sales volumes and lower prices. Sales volumes were lower by approximately 7% in the year ended December 31, 2019 as compared to the same period in 2018, driven by lower phenol and acetone sales, though these were partially offset by higher raw material sales volumes. The reduction in the price of finished goods was driven by lower average acetone and phenol prices which fell by approximately 22% and 6% respectively in the year ended December 31, 2019 as compared to the same period in 2018, following lower benzene and propylene prices in both Europe and the US. The Oxide business revenues decreased in the year ended December 31, 2019 as compared to the same period in 2018, driven predominately by lower volumes and to a lesser extent, lower prices. Overall volumes fell by approximately 5% compared to 2018. This was due in part to a general cooling of the general economic environment but also significant competition on commodity products such as glycol that necessitated output reductions due to falling price levels. Overall prices decreased by approximately 3% in the year ended December 31, 2019 as compared to the same period in 2018, as pricing closely followed the fall in underlying raw material costs of ethylene and propylene, which followed the reduction in crude oil prices. There was a significant price reduction in glycol products, mainly due to high levels of imports from the Middle East and

USA. Alkox products experienced some price erosion due to the need to gain market share for the new Alkox 6 unit in Antwerp which came on stream in March 2019, although the new unit did mean the business was able to sell more specialty products in the year. Nitriles revenues decreased in the year ended December 31, 2019 as compared to the same period in 2018, driven by both lower selling prices and more significantly, decreased sales volumes. Sales volumes of acrylonitrile fell approximately 27% in the year ended December 31, 2019 as compared to the same period in 2018. This was partly due to ABS sales continuing to be subject to a subdued automotive sector, whilst acrylic fibre was pressured by competing fibres such as cotton and polyester. Acrylamide remained robust in the US and Europe, driven by a strong oil & gas sector, where it is used as a drilling fluid. Supply was also significantly impacted by limited product availability due to unplanned outages in the year at the Green Lake and Seal Sands sites. The average acrylonitrile sales price fell approximately 14% in the year ended December 31, 2019 as compared to the same period in 2018, reflecting the weaker markets in the ABS and acrylic fibre sectors. The Oligomers business revenues were lower in the year ended December 31, 2019 as compared to the same period in 2018, mainly as a result of lower volumes with prices being relatively flat in comparison. The overall demand trend was strong in most products and regions, although overall sales volumes were approximately 4% lower in the year ended December 31, 2019 as compared to the same period in 2018. Both LAO and PAO volumes were negatively impacted in 2019 compared to 2018, which had increased volumes due to the impact of competitor shortages during that year. In addition, LAO volumes were also negatively impacted by a Canadian rail strike in the fourth quarter of 2019. LAO volumes in Asia were higher on the back of increased demand in China. Sales volumes for PAO during 2019 were approximately 10% lower than 2018, with good core product demand offset by weak demand in automotive applications. Hi-Viscosity PAO volumes set a new annual record during 2019, whilst SO sales were also strong at 2% below the annual record set in 2018. Sales volumes were strong in CP and IA, compensating for some weakness in DIB. During 2019 prices were generally flat in comparison to 2018 with LAO prices approximately 1% lower, PAO prices approximately 3% higher and SO prices approximately 2% higher as feedstock related contract prices make up the bulk of the pricing arrangements, so regional prices generally move with underlying raw material prices.

EBITDA before exceptionals. EBITDA before exceptionals in the Chemical Intermediates segment decreased by €191.2 million, or 23.4%, to €626.9 million for the year ended December 31, 2019, as compared to €818.1 million for the year ended December 31, 2018. The Phenol business profitability increased in the year ended December 31, 2019 as compared to the same period in 2018, primarily due to increased phenol margins, partially offset by the reduction in sales volumes and lower acetone returns. The Oxide business results in the year ended December 31, 2019 decreased compared with the same period in 2018, mainly driven by lower margins and lower sales volumes, partially offset by the performance of the newly acquired RWE cogeneration unit. Margins came under increased pressure in 2019 due to the price difference in ethylene and propylene when compared to the USA and Asia, causing a significant increase in imported products and resultant downward price pressure which eroded margins. Overall sale volumes decreased compared to 2018 as a result of a general cooling of the general economic environment and significant competition on commodity products such as glycol, which resulted in a decrease in production levels due to falling prices. Partially offsetting these decreases were additional margins from the cogeneration unit acquired from RWE in February 2019. The Nitriles business experienced a decrease in profitability in the year ended December 31, 2019 as compared to the same period in 2018, primarily due to lower volumes but also due to reduced margins and higher fixed costs. Sales volumes of acrylonitrile decreased approximately 27% in the year ended December 31, 2019 as compared to the same period in 2018, due to a weaker automotive sector and pressure on acrylic fibres from competing fibres, together with reduced supply from the unplanned outages at the Green Lake and Seal Sands facilities. Overall margins were lower during the year ended December 31, 2019 as compared to the same period in 2018, with acrylonitrile margins decreasing approximately 4% in 2019 as compared to 2018 due to lower demand and falling pricing from a weakening market. Fixed costs were higher in the year ended December 31, 2019 as compared to the same period in 2018 due to higher maintenance costs as a result of unplanned outages at the Green Lake site. The Oligomers business profitability was higher in the year ended December 31, 2019 as compared to the same period in 2018 primarily due to higher margins, partially offset by higher fixed costs. Margins during the year ended December 31, 2019 were higher than the same period in 2018 primarily due to finished goods price levels being maintained in the face of lower feedstock prices. Partially offsetting this increase was a reduction in overall sales volumes, which were approximately 4% lower in the year ended December 31, 2019 as compared to the same period in 2018. In addition, fixed costs increased during the year ended December 31, 2019 as compared to the same period in 2018 driven by increased project support and start-up expenses in respect of the new LAO and PAO expansion projects.

Year Ended December 31, 2018 Compared with Year Ended December 31, 2017

Consolidated

Revenue. Revenue increased by €881.1 million, or 5.8%, to €16,091.5 million for the year ended December 31, 2018 as compared to €15,210.4 million for the year ended December 31, 2017. The increase in revenues was driven primarily by an increase in selling prices which followed the rise in crude oil prices which increased to an average of \$71/bbl for the year ended December 31, 2018 as compared to \$54/bbl in the same period in 2017. In addition, the Group experienced increased sales volumes for the year ended December 31, 2018 as compared to the same period in 2017, driven by the O&P North America, Nitriles and Oligomers businesses.

Cost of sales. Cost of sales increased by €1,141.6 million, or 9.1%, to €13,665.8 million for the year ended December 31, 2018 as compared to €12,524.2 million for the year ended December 31, 2017. The increase in cost of sales is largely due to the rise in crude oil prices, which has meant higher feedstock prices, together with an increase in volumes across the Group for the year ended December 31, 2018, as compared to same period in 2017.

Gross profit. Gross profit decreased by €260.5 million, or 9.7%, to €2,425.7 million for the year ended December 31, 2018 as compared to €2,686.2 million for the year ended December 31, 2017. The decrease in profitability was primarily driven by lower margins and the depreciation of the US dollar against the euro. The depreciation of the US dollar by approximately 5% against the euro in the year ended December 31, 2018 as compared to the same period of 2017 has decreased the reported euro profitability. Margins in the O&P Europe segment declined due to weaker market conditions compared to the strong conditions in 2017, with lower underlying market demand and increased competition from higher levels of imports. The decrease in gross profit was also due to inventory holding losses within the O&P segments, which were losses of approximately €26 million in the year ended December 31, 2018, as compared to inventory holding gains of approximately €87 million in the same period in 2017. Partially offsetting the decrease was increased profitability in the Nitriles business primarily due to higher margins and increased sales volumes as the business experienced increased demand and stronger pricing from market tightness in all sectors.

Distribution costs. Distribution costs increased by €8.5 million, or 4.1%, to €215.0 million for the year ended December 31, 2018 as compared to €206.5 million for the year ended December 31, 2017. The increase in distribution costs in the Group reflects the increase in sales volumes for the Group for the year ended December 31, 2018, as compared to same period in 2017.

Administrative expenses before exceptional items. Administrative expenses before exceptional items decreased by €26.5 million, or 6.3%, to €392.1 million for the year ended December 31, 2018 as compared to €418.6 million for the year ended December 31, 2017. The decrease in administrative expenses is primarily due to a decrease in research and development costs and an increase in other operating income for the year ended December 31, 2018 as compared to the same period in 2017. In addition, the depreciation of the US dollar by approximately 5% against the euro in the year ended December 31, 2018 as compared to the same period in 2017 has decreased the reported euro expenses of the US businesses.

Operating profit. Operating profit decreased by €242.5 million, or 11.8%, to €1,818.6 million for the year ended December 31, 2018 as compared to €2,061.1 million for the year ended December 31, 2017.

Share of (loss)/profit of associates and joint ventures using the equity accounting method. Share of (loss)/profit of associates and joint ventures using the equity accounting method was a loss of €66.6 million for the year ended December 31, 2018 as compared to a profit of €143.5 million for the year ended December 31, 2017. The share of loss primarily reflects our share of the results of the Refining joint venture with PetroChina. The European refining market has seen margins weaken in the year ended December 31, 2018 as compared to the same period in 2017.

Profit on disposal of fixed assets. Profit on disposal of fixed assets was €2.6 million for the year ended December 31, 2017.

Profit before net finance costs. Profit before net finance costs decreased by €455.2 million, or 20.6%, to €1,752.0 million for the year ended December 31, 2018 as compared to €2,207.2 million for the year ended December 31, 2017.

Finance income. Finance income decreased by €374.6 million, or 76.2%, to €117.3 million for the year ended December 31, 2018 as compared to €491.9 million for the year ended December 31, 2017. The decrease is largely due to lower foreign exchange gains associated with short term intra group funding which was a gain of €15.3 million for the year ended December 31, 2018, as compared to a gain of €408.1 million for the year ended December 31, 2017. In addition, the Group has interest income on the investment in INEOS Investments Partnership, together with interest income from loans to INEOS Upstream Limited, a related party.

Finance costs before exceptional item. Finance costs before exceptional item increased by €39.9 million, or 11.2%, to €395.1 million for the year ended December 31, 2018 as compared to €355.2 million for the year ended December 31, 2017. The increase in finance costs reflects an increase in foreign exchange losses associated with short term intra group funding which was a loss of €148.3 million for the year ended December 31, 2018, as compared to a loss of €45.2 million for the year ended December 31, 2017. Partially offsetting this increase was a full year benefit of two refinancing transactions completed by the Group in February 2017 and November 2017 which resulted in the weighted average interest rate on the Group's debt being lower.

Exceptional finance costs. Exceptional finance costs were €44.1 million for the year ended December 31, 2017. In February 2017, the Group completed a refinancing of the Senior Secured Term Loans and the redemption of the Senior Notes due 2019. Due to the substantial modification of the Senior Secured Term Loans, the unamortised issue costs of €23.6 million were written off as exceptional finance costs during the year ended December 31, 2017. In addition, following the early redemption of the Senior Notes due 2019, an exceptional finance cost of €20.5 million was recognised during the year ended December 31, 2017, which included an early prepayment premium of €16.7 million and the write-off of deferred issue costs associated with the redeemed Notes of €3.8 million.

Profit before tax. Profit before tax decreased by €825.6 million, or 35.9%, to €1,474.2 million for the year ended December 31, 2018 as compared to €2,299.8 million for the year ended December 31, 2017.

Tax charge. Tax charge decreased by €22.6 million, or 7.5%, to a charge of €278.9 million for the year ended December 31, 2018 as compared to a charge of €301.5 million for the year ended December 31, 2017. The decrease in tax charge was primarily due to the decreased profitability of the Group and US tax reforms, which have reduced the overall US tax rate (federal and state) from 38% to 22% with effect from January 1, 2018. This decrease was partially offset by a tax credit in the year ended December 31, 2017 following a reduction in the Group's deferred tax liabilities as a consequence of the reduction in corporate tax rates, primarily in the USA and Belgium. The effective tax rates for the Group for the years ended December 31, 2018 and December 31, 2017 were lower than the standard rate in Luxembourg of 26.01% (2017: 27.08%) as profits were made in regions with significantly lower rates (such as UK, USA and Switzerland) which more than offset profits made in regions with higher rates than the standard rate (such as Germany).

Profit after tax. Profit after tax decreased by €803.0 million, or 40.2%, to €1,195.3 million for the year ended December 31, 2018, as compared to €1,998.3 million for the same period in 2017.

Business Segments

The Group reports under three business segments: O&P North America, O&P Europe and Chemical Intermediates.

The following table provides an overview of the historical revenue and EBITDA before exceptionals of each of the business segments for the periods indicated:

	For the year ended	
	December 31,	
	2018	2017
<i>Revenue</i>		
Continuing operations		
O&P North America.....	4,044.1	3,573.9
O&P Europe	6,388.8	5,896.7
Chemical Intermediates	7,855.0	7,589.4
Eliminations.....	(2,196.4)	(1,849.6)
	<u>16,091.5</u>	<u>15,210.4</u>
<i>EBITDA before exceptionals</i>		
Continuing operations		
O&P North America.....	798.0	896.0
O&P Europe	671.7	814.0
Chemical Intermediates	818.1	819.4
	<u>2,287.8</u>	<u>2,529.4</u>

O&P North America

Revenue. Revenue in the O&P North America segment increased by €470.2 million, or 13.2%, to €4,044.1 million for the year ended December 31, 2018, as compared to €3,573.9 million for the year ended December 31, 2017. The increase was driven primarily by higher volumes. Sales volumes increased in the year ended December 31, 2018 as compared to the same period in 2017 by approximately 21% driven by higher sales volumes of olefins and polyethylene, partially offset by lower polypropylene volumes. The higher olefin sales were mainly driven by higher feedstock sales whilst the higher polyethylene sales were driven by higher production levels from the Gemini HDPE joint venture. The strong oil and gas markets also resulted in an increase in volumes for the pipe business. The 2017 sales volumes were adversely impacted by Hurricane Harvey in August 2017, which led to some lost production volumes. Partially offsetting the increase was the adverse impact of the depreciation of the US dollar by approximately 5% against the euro in 2018 as compared to 2017, which has decreased reported euro revenues.

EBITDA before exceptionals. EBITDA before exceptionals in the O&P North America segment decreased by €98.0 million, or 10.9%, to €798.0 million for the year ended December 31, 2018, as compared to €896.0 million for the year ended December 31, 2017. The business has continued to benefit from its flexibility to be able to utilize cheaper gas feedstock to maintain healthy margins with both ethane and propane continuing to be advantaged feedstocks during 2018. The US cracker business environment continued with high operating rates throughout the year ended December 31, 2018, although increased supply from new industry capacity coming online during the year led to some reduction in margins. During 2018 the business experienced lower overall margins than the year ended December 31, 2017, driven primarily by lower olefin margins, which were partially offset by higher polyethylene and polypropylene margins. There were inventory holding losses of approximately €28 million for the year ended December 31, 2018, as compared to inventory holding gains of approximately €33 million in the same period in 2017. Partially offsetting this decrease was higher sales volumes of olefins and polyethylene along with increased volumes for the pipe business following strong demand in the oil and gas markets.

O&P Europe

Revenue. Revenue in the O&P Europe segment increased by €492.1 million, or 8.3%, to €6,388.8 million for the year ended December 31, 2018, as compared to €5,896.7 million for the year ended December 31, 2017. The increase in revenue was driven by higher selling prices partially offset by lower sales volumes for the year ended December 31, 2018 as compared to the same period in 2017. The increase in revenues for the business was driven by the general price environment which was higher in 2018 as compared to 2017 as crude oil prices rose to an average of \$71/bbl for the year ended December 31, 2018 as compared to an average of \$54/bbl for the year

ended December 31, 2017, which led to a rise in prices across a number of product lines. The propylene price increased by approximately 19% due to strong underlying demand and a tight market due to refinery and cracker outages in the first half of 2018. During the second half of the year the market became more balanced. The ethylene market was tight and demand was strong at the start of 2018 before lengthening in the second half of the year. The butadiene price decreased by approximately 9% in the year ended December 31, 2018 as compared to the same period in 2017 as the butadiene market was exceptional strong in Spring 2017 due to improved demand as a result of a heavy turnaround season which restricted supply. The benzene price in 2018 was approximately 14% lower than in 2017 as a result of a more competitive market due to new capacities coming online which has increased benzene supply. As compared to 2017 the polymers prices did not change significantly, although the polypropylene price increased by approximately 9%. During 2018 the polymers market was characterised by a balanced-to-long market with steady import volumes in the first half year of the year; however, the second half of 2018 saw weakening demand due to destocking and over supply from increased competition from imports. Partially offsetting the impact of higher prices was a decrease in sales volume of approximately 8% in the year ended December 31, 2018 as compared to the same period in 2017 as volumes were adversely impacted by persistently low water levels on the Rhine due to hot weather conditions. This led to constrained volumes and logistical restrictions within inland Europe which adversely impacted the operation rates of the Koln polymer and olefin assets. Polymers volumes were also lower during the year ended December 31, 2018 as compared to the same period in 2017 due to increased imports into Europe from the Middle East, South Korea and the US. Olefin sales volumes were also lower during the year ended December 31, 2018 as compared to the same period in 2017 due to an aromatics turnaround and some unplanned outages on the Koln assets during the year.

EBITDA before exceptionals. EBITDA before exceptionals in the O&P Europe segment decreased by €142.3 million or 17.5% to €671.7 million for the year ended December 31, 2018, as compared to €814.0 million for the year ended December 31, 2017. The results for the year ended December 31, 2018 have decreased compared to the same period in 2017, primarily due to lower margins, lower inventory holding gains and higher fixed costs. Margins were lower in the year ended December 31, 2018 as compared to the same period in 2017 as increased cracker margins at Rafnes due to advantageous US ethane market conditions were offset by decreased cracker margins at Koln due to the market environment and higher naphtha prices. Butadiene margins were lower during the year ended December 31, 2018 as market conditions weakened compared to the exceptionally strong conditions experienced in 2017. Aromatics margins were also lower in the year ended December 31, 2018 as compared to the same period in 2017 due to a long European market and higher level of imports. Polymer margins were down from 2017 levels as the market experienced a weaker underlying demand trend and increased competition from higher imports. The business results for the year ended December 31, 2018 as compared to the same period in 2017 were also adversely impacted by a decrease in inventory holding gains to approximately €2 million in the year ended December 31, 2018 as compared to gains of approximately €54 million in the year ended December 31, 2017. Fixed costs were higher in the year ended December 31, 2018 as compared to the same period in 2017, primarily due to the additional costs within the Trading and Shipping business, although this increase was more than offset by additional margins generated by the Trading and Shipping business during the year ended December 31, 2018 as compared to the same period in 2017.

Chemical Intermediates

Revenue. Revenue in the Chemical Intermediates segment increased by €265.6 million, or 3.5%, to €7,855.0 million for the year ended December 31, 2018, as compared to €7,589.4 million for the year ended December 31, 2017. Revenues of the Phenol business decreased in the year ended December 31, 2018 as compared to the same period in 2017, driven by lower sales volumes partially offset by higher prices. Sales volumes were lower by approximately 6% in the year ended December 31, 2018 as compared to the same period in 2017, driven by lower acetone sales and to a lesser extent lower phenol sales. The increase in the price of finished goods was driven by higher average acetone prices which increased by approximately 6% in the year ended December 31, 2018 as compared to the same period in 2017, following higher propylene prices in both Europe and the US. This was partially offset by a decrease in average phenol prices which moved in line with the underlying raw material price of benzene which decreased in both the US and Europe in the year ended December 31, 2018 as compared to the same period in 2017. The Oxide business revenues increased in the year ended December 31, 2018 as compared to the same period in 2017, driven by higher prices partially offset by lower volumes. Overall prices increased by approximately 8% in the year ended December 31, 2018 as compared to the same period in 2017, as pricing closely followed the rise in underlying raw material costs of ethylene and propylene which followed the increase in crude oil prices. Glycol products experienced a very strong start to 2018 with a demand pull from Asia, in particular China, however in the second half of 2018 pricing reduced sharply, which meant that average glycol prices only increased by 4% in the year ended December 31, 2018 as compared to the same period in 2017. For most EO and derivatives the increase in

ethylene and propylene price were passed onto customers. The propylene glycol pricing peaked in 2018 due to a very long and cold winter, which kept prices up throughout the summer as well. Alkox experienced some price erosion due to some pre-marketing and tolling done in preparation for the new alkox 6 unit coming on stream in 2019 which will add further alkox capacity to the portfolio. Despite some significant turnarounds on assets at Antwerp, Koln and Hull sales volumes only decreased by approximately 1% in the year ended December 31, 2018 as compared to the same period in 2017. The first half of 2018 saw very high sales volumes as a result of a very buoyant European market and lots of export opportunities whilst the second half of 2018 experienced lower sales volumes as a result of several planned turnarounds and the cooling down of the economic environment due to mounting geopolitical pressures. Nitriles revenues increased in the year ended December 31, 2018 as compared to the same period in 2017 driven by higher selling prices and increased sales volumes. The average acrylonitrile sales price rose approximately 18% in the year ended December 31, 2018 as compared to the same period in 2017, reflecting tight supply conditions due to a heavy competitor turnaround schedule in Asia. Sales volumes of acrylonitrile increased approximately 7% in the year ended December 31, 2018 as compared to the same period in 2017, due to strong demand from the US export market into the ABS and acrylic fibre sectors, a tight US domestic market in the acrylamide sector from fracking and enhanced oil recovery and a tight market for acrylic fibre in Europe. Supply limitations due to Hurricane Harvey recovery, propylene supply restrictions and industry outages have kept the supply/demand balance tight. The Oligomers business revenues were higher in the year ended December 31, 2018 as compared to the same period in 2017, mainly as a result of higher volumes and to a lesser extent, higher prices. The overall demand trend was solid with overall sales volumes up approximately 4% in the year ended December 31, 2018 as compared to the same period in 2017. Both LAO and PAO products set annual volume records during 2018. LAO global comonomer sales were strong with continued market growth and tight hexene and oxene markets through most of 2018. Oilfield sales were slightly softer with instability of crude oil prices, especially impacting North American sales. Europe and Asia sales were higher in 2018 as compared to 2017 on strengthening market conditions and production issues at Shell, a major competitor who announced the permanent closure of their Stanlow plant. Sales of PAO during 2018 were strong in major core products with increased automotive demand and competitor supply issues. Hi-Viscosity sales set a new annual record during 2018, with transition to our own production successfully completed mid-year. During 2017 both LAO and PAO sales benefitted from filling Hurricane Harvey related competitor shortages. SO demand was lower in 2018 in North America and Europe, and higher in Asia. Sales were strong in CP and IA, on normal market growth, with CP additionally benefitting from competitor production issues. The largest Oligomers SO product, DIB had lower sales in 2018 as compared to 2017 due largely to significant market oversupply. All three products were challenged by product and supply shortfalls with the low Rhine river levels. The higher sales prices followed the increase in the underlying raw material prices since feedstock related contract prices make up the majority of the Oligomers pricing arrangements.

EBITDA before exceptionals. EBITDA before exceptionals in the Chemical Intermediates segment decreased by €1.3 million, or 0.2%, to €818.1 million for the year ended December 31, 2018, as compared to €819.4 million for the year ended December 31, 2017. The Phenol business profitability decreased in the year ended December 31, 2018 as compared to the same period in 2017 primarily due to lower margins driven by lower acetone returns in the US and Europe and the adverse impact of lower benzene prices on phenol margins. The Oxide business results in the year ended December 31, 2018 decreased compared with the same period in 2017, mainly driven by lower sales volumes and higher fixed costs, partially offset by higher margins. Sales volumes decreased in the year ended December 31, 2018 as compared with the same period in 2017, mainly driven by significant turnarounds at the Antwerp, Koln and Hull sites. Fixed costs were also higher in the year ended December 31, 2018 as compared with the same period in 2017, driven by investment within the sales organisation and higher maintenance costs. Partially offsetting these decreases was higher margins in the year ended December 31, 2018 as compared to the same period in 2017 due to an exceptionally strong first half of 2018 which saw very strong glycol pricing and top of cycle margins across the business. The second half of 2018 experienced some margin pressure on almost all product groups, especially commodities although ENB and alkox achieved historical highs during 2018. The Nitriles business experienced an increase in profitability in the year ended December 31, 2018 as compared to the same period in 2017, primarily due to higher margins and increased sales volumes. Overall margins were higher during the year ended December 31, 2018 as compared to the same period in 2017, as the business experienced increased demand and stronger pricing from market tightness in all sectors. Sales volumes of acrylonitrile increased approximately 7% in the year ended December 31, 2018 as compared to the same period in 2017, due to a stronger US market and a tight market for acrylic fibre in Europe. The Oligomers business profitability was lower in the year ended December 31, 2018 as compared to the same period in 2017 primarily due to higher fixed costs and lower margins, partially offset by higher sales volumes. Fixed costs increased during the year ended December 31, 2018 as compared to the same period in 2017 due to increased support costs associated with the new LAO and PAO plants before their planned start up in 2019 and early 2020, respectively. Margins during the year ended December 31, 2018 were lower than the same period in 2017 primarily due to higher raw material costs which were not fully passed onto

customers resulting in some margin erosion. Partially offsetting these decreases was an increase in overall sales volumes, which were approximately 4% higher in the year ended December 31, 2018 as compared to the same period in 2017.

Liquidity and Capital Resources

Capital Resources

Our historical liquidity requirements have arisen primarily from the need for us to meet our debt service requirements, to fund capital expenditures for the general maintenance and expansion of our production facilities and for new facilities, and to fund growth in our working capital.

Our primary sources of liquidity are cash flows from operations of subsidiaries, cash on our balance sheet and borrowings under the Receivables Securitization Program and the Inventory Financing Facility. Our ability to generate cash from our operations depends on future operating performance, which is in turn dependent, to some extent, on general economic, financial, competitive market, legislative, regulatory and other factors, many of which are beyond our control.

We believe that our operating cash flows, together with the cash resources and future borrowings under the Receivables Securitization Program and the Inventory Financing Facility, will be sufficient to fund our working capital requirements, anticipated capital expenditures and debt service requirements as they become due, although this may not be the case.

Financing Arrangements

The Group's capital structure includes a mixture of secured term loans and secured notes, together with unsecured notes. These various debt instruments are denominated in both Euros and US Dollars where appropriate, to approximately match the main currencies of the cash flows generated by the Group's operations.

The Group has a €800 million Receivables Securitization Program in place, which matures in December 2022.

The Group has an Inventory Financing Facility in place, which matures in June 2020, although this is extendable by mutual agreement.

The Group has a €300.0 million Letter of Credit facility. Under the terms of the facility the Group undertakes to provide cash collateral to cover any letters of credit, guarantees, bonds or indemnities issued under the facility.

Following the Group's purchase of the remaining 50% interest in the Noretyl ethylene cracker at Rafnes, Norway from the Kerling group in July 2015, the Group assumed the obligations of loan facility of Noretyl AS. In November 2019 following the repayment of the initial loan the term loan facility was amended and restated with a new facility amount of €250.0 million. The facility matures in November 2024.

As part of a project at the Group's Koln site to replace part of its incineration or cogeneration unit, the Group has entered into a €120 million loan facility. The facility matures in December 2024.

As of December 31, 2019, the Group had a total of €3,470.9 million Senior Secured Term Loans, €1,096.3 million Senior Notes due 2024, €550.0 million Senior Secured Notes due 2025 and €770.0 million Senior Secured Notes due 2026 and a €141 million Schuldschein loan facility outstanding.

Capital Expenditures

As part of our strategy to focus capital investments on improving returns, we have instituted measures to ensure the most efficient uses of capital investment. We intend to manage capital expenditures to maintain our well invested asset base.

During the years ended December 31, 2019, 2018 and 2017 net capital expenditures analyzed by business segment were as follows:

	For the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
O&P North America	590.3	389.0	279.7
O&P Europe	276.9	210.9	236.1
Chemical Intermediates.....	512.8	573.6	398.8
Total	1,380.0	1,173.5	914.6

The main capital expenditures for the year ended December 31, 2019 related to further expenditure within the O&P North America segment on a furnace replacement project, a cogeneration project and a debottleneck of one of the crackers at Chocolate Bayou, together with a number of smaller turnarounds and growth projects. The main capital expenditures in the O&P Europe segment were at the Koln site on a cogeneration project, new office buildings and a jetty, together with a turnaround on a small butadiene unit. The main expenditure in the Chemical Intermediates segment was additional growth expenditure by the Oligomers business on the LAO and PAO platforms and a barge dock at Chocolate Bayou, USA as well as expenditure on LAO railcars. There was also expenditure within the Oxide business at the Antwerp, Belgium site in respect of commissioning the alkox 6 unit and EO storage project which came into operation during the first quarter of 2019, as well as some turnaround costs. The Phenol business also had expenditure on a new cumene unit project in Germany whilst the Nitriles business had expenditure on a turnaround on its ammonia unit in Koln. The remaining capital expenditure related primarily to sustenance expenditure.

The main capital expenditures for the year ended December 31, 2018 related to expenditure within the O&P North America segment on a furnace replacement project, debottleneck on one of the crackers and a number of smaller turnarounds and projects. The main capital expenditures in the O&P Europe segment were at the Koln site on a cogeneration project and new office buildings, together with turnarounds at the Koln and Lillo sites. The main expenditure in the Chemical Intermediates segment was additional growth expenditure by the Oligomers business on the LAO platform, railcars and a barge dock at Chocolate Bayou, USA. There was also expenditure within the Oxide business at the Antwerp, Belgium site in respect of EO storage projects and a new alkox and boiler unit as well as a turnaround at the Hull site. The remaining capital expenditure related primarily to sustenance expenditure.

The main capital expenditures for the year ended December 31, 2017 related to expenditure within the O&P North America segment on a cogeneration project at the Chocolate Bayou site, together with expenditure on a polyethylene new line expansion, a mini turnaround and debottleneck on one of the crackers and other linked projects as well as the acquisition of the Marina View headquarters building in Texas, USA. The main capital expenditures in the O&P Europe segment were at the Koln site on a cogeneration project, office buildings, lifecycle project and turnarounds on a cracker and LLDPE unit. The main expenditure in the Chemical Intermediates segment was additional growth expenditure by the Oligomers business on the LAO platform at Chocolate Bayou, USA and on the PAO HiVis plant at LaPorte, USA which began commissioning in July 2017. There was also expenditure within the Oxide business at the Antwerp, Belgium site in respect of third party co-sited shared services and EO storage projects and within the Nitriles business on a turnaround at the Green Lake, USA site. The remaining capital expenditure related primarily to sustenance expenditure.

We expect that our aggregate capital expenditure for 2020 will be approximately €1.3 billion which includes significant growth capital expenditure relating largely to projects in the O&P North America, O&P Europe, Oxide, Oligomers and Phenol businesses and maintenance expenditures (including turnarounds) across the Group's manufacturing facilities. These capital expenditures may be deferred where possible depending upon the impact of the COVID-19 pandemic on the global economy during 2020.

Working Capital

We anticipate that our working capital requirements will vary due to changes in raw material costs, which affect inventory and account receivables levels, and sales volumes. Working capital levels typically develop in line with raw material prices, although timing factors can affect flows of capital. We expect to fund our working capital requirements with cash generated from operations and drawings under our Securitization Program.

Cash Flows

During the years ended December 31, 2019, 2018 and 2017 our net cash flow was as follows:

	For the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Cash flow from operating activities.....	2,085.5	2,050.4	2,187.5
Cash flow from investing activities.....	(1,162.9)	(1,040.5)	(745.5)
Cash flow from financing activities.....	(2,027.2)	(367.9)	(2,143.0)

Cash flows from operating activities

Net cash flow from operating activities was an inflow of €2,085.5 million for the year ended December 31, 2019 compared to an inflow of €2,050.4 million for the year ended December 31, 2018. The inflow was due to the profit generated from operations in addition to working capital inflows of €337.4 million for the year ended December 31, 2019 as compared to an outflow of €27.8 million for the year ended December 31, 2018. The working capital inflow for the year ended December 31, 2019 primarily reflected the decrease in raw material costs as crude oil prices decreased to an average of \$64/bbl for the year ended December 31, 2019 as compared to an average of \$71/bbl for the year ended December 31, 2018.

Net cash flow from operating activities was an inflow of €2,050.4 million for the year ended December 31, 2018 compared to an inflow of €2,187.5 million for the year ended December 31, 2017. The inflow was due to the profit generated from operations, partially offset by working capital outflows of €27.8 million for the year ended December 31, 2018 as compared to an outflow of €192.3 million for the year ended December 31, 2017. The working capital outflow for the year ended December 31, 2018 primarily reflected the rise in raw material costs as crude oil prices increased to an average of \$71/bbl for the year ended December 31, 2018 as compared to an average of \$54/bbl for the year ended December 31, 2017.

Taxation payments of €172.4 million were made for the year ended December 31, 2019 compared to payments of €202.1 million for the year ended December 31, 2018. The payments for the year ended December 31, 2019 primarily reflect payments made to the tax authorities in the US, Germany, Canada, Belgium and Switzerland, partially offset by contributions received from related parties.

Taxation payments of €202.1 million were made for the year ended December 31, 2018 compared to payments of €143.1 million for the year ended December 31, 2017. The payments for the year ended December 31, 2018 primarily reflect payments made to the tax authorities in the US and to a lesser extent the UK, Germany, Canada and Belgium. In addition, there was a tax refund from the US tax authorities in relation to overpayments made in prior years.

Cash flows from investing activities

In March 2019 the Group received cash proceeds of €260.5 million (\$296.5 million) following the repayment of the Group's preferential interest in INEOS Investments Partnership following the sale by INEOS Investments Partnership of its assets (shares in PQ Corporation) to INEOS Limited, a related party.

In July 2019 the Group acquired a shale oil & gas business located in the Giddings Field in Texas, USA for cash consideration of €27.2 million.

On March 1, 2019 the Group acquired the INESCO combined heat and power plant from RWE Generation NL B.V for cash consideration of €70.4 million. Cash balances acquired with the business were €41.9 million.

On November 1, 2016 the Group acquired 100% of the shares of WLP Holding Corporation, one of the largest high-density polyethylene (HDPE) pipe manufacturers in North America. During the year ended December 31, 2019 the Group paid a further €15.0 million (December 31, 2017: €7.4 million, December 31, 2017: €2.5 million) in relation to the acquisition. This payment was the third instalment of the contingent consideration which was subject to the acquired business achieving certain targets over a three year period.

For the year ended December 31, 2019 no loans (December 31, 2018: no loans, December 31, 2017: €315.7 million) were granted to related parties and no loan repayments (December 31, 2018: €105.4 million, December 31, 2017: €497.7 million) were received from related parties.

During 2015 the Group provided a loan of \$623.7 million (€568.4 million) to INEOS Upstream Limited, a related party, in connection with its acquisition of natural gas assets in the North Sea. The loan facility is unsecured, matures on October 26, 2020 and bears interest at 7% per annum. In September 2017, INEOS Upstream Limited, a related party, acquired further natural gas assets in the North Sea through its acquisition of the entire oil and gas business of DONG Energy A/S. In connection with the DONG Acquisition, the Group advanced a loan of \$376.2 million (€315.7 million) to INEOS Upstream Limited, the proceeds of which were on-lent to certain of its subsidiaries. The loan is unsecured, matures in June 2022 and bears interest at 7% per annum. During 2019 no loan repayments were received (2018: net loan repayments of \$122.5 million (€105.4 million), 2017: net loan repayments of \$142.7 million (€121.4 million)), leaving \$617.1 million (€550.8 million) outstanding under the facility as at December 31, 2019 (2018: \$617.1million (€539.7 million), 2017: \$739.6 million (€619.5 million)). During the year ended December 31, 2019 INEOS Upstream Limited paid €39.5 million (December 31, 2018: €41.6 million, December 31, 2017: €36.6 million) of interest relating to the loan.

Following the divestment of the Grangemouth petrochemical business in 2013 the Group put in place a €200 million shareholder loan facility to fund the ongoing operations and investments required at the site. During the year ended December 31, 2017 INEOS Grangemouth plc repaid the Group €127.0 million in full repayment (including accrued interest) of the shareholder loan facility. In July 2019 INEOS Grangemouth plc entered in to a new Senior Term Loan facility and the shareholder loan was cancelled in full.

During 2014 a related party group acquired the remaining 50% of the Styrolution joint venture which was previously a joint venture between INEOS Industries Holdings Limited, a related party, and BASF. As part of the funding for the acquisition the Group provided INEOS Styrolution Holding GmbH ('INEOS Styrolution'), a related party, with a Second Lien PIK Toggle Loan. During 2016 Styrolution refinanced its capital structure and the Group invested €250 million in Styrolution Term Loan debt which was issued during September 2016. The new Term Loan was secured on the assets of INEOS Styrolution, bore interest at a rate per annum equal to EURIBOR (subject to a floor of 1.00% per annum) plus a margin of 3.75% and matured on September 30, 2021. In October 2017 the Term Loan was fully repaid to the Group resulting in an inflow of €249.3 million. During the year ended December 31, 2017 INEOS Styrolution paid €7.7 million of interest relating to the Term Loan debt.

In July 2014 the Group set up a joint venture with Sasol to build and operate an HDPE plant at the Battleground site in Texas, USA. The Group invested €12.9 million into the joint venture during the year ended December 31, 2018 (December 31, 2017 €57.8 million). The plant became fully operational in the fourth quarter of 2017.

There were no other significant cash flows from investing activities in the years ended December 31, 2019, 2018 and 2017 other than the acquisition of property, plant and equipment (see “—Capital Expenditures” above).

Cash flows from financing activities

Interest payments of €329.7 million were made in the year ended December 31, 2019 compared to €227.8 million for the year ended December 31, 2018. The interest payments during the year ended December 31, 2019 related primarily to monthly cash payments in respect of the Senior Secured Term Loans, semi-annual interest payments on the Senior Notes due 2024, Senior Secured Notes due 2025 and Senior Secured Notes due 2026, together with interest paid on lease liabilities of €48.5 million following the adoption of the new accounting standard *IFRS 16 Leases*. In addition, there was a final interest payment and early prepayment premium of €7.7 million on the Senior Secured Notes due 2023, which were redeemed in April 2019.

Interest payments of €227.8 million were made in the year ended December 31, 2018 compared to €310.6 million for the year ended December 31, 2017. The interest payments during the year ended December 31, 2018 related primarily to monthly cash payments in respect of the Senior Secured Term Loans, semi-annual interest payments on the Senior Secured Notes due 2023, Senior Notes due 2024 and Senior Secured Notes due 2025. The interest payments during the year ended December 31, 2017 related primarily to monthly cash payments in respect of the Senior Secured Term Loans, semi-annual interest payments on the Senior Secured Notes due 2023 and Senior Notes due 2024 and a final interest payment and early prepayment premium of €16.7 million on the Senior Notes due 2019, which were redeemed in February 2017.

In June 2019 the Group entered into an Inventory Financing Facility and made drawdowns of €190.9 million during the year ended December 31, 2019. The Group paid associated debt issue costs of €0.9 million in relation to the Inventory Financing Facility during the year ended December 31, 2019.

In April 2019 the Group issued €770 million Senior Secured Notes due 2026. The proceeds of the refinancing were used to redeem in full the €770 million Senior Secured Notes due 2023 on May 1, 2019. The Group paid associated debt issue costs of €8.8 million in relation to the refinancing of the Senior Secured Notes during the year ended December 31, 2019.

In March 2019 the Group entered into a €141 million floating rate Schuldschein Loan facility. The facility matures in March 2024. The Group paid associated debt issue costs of €2.5 million in relation to the Schuldschein Loan during the year ended December 31, 2019.

As part of the Koln project to replace part of its incineration or cogeneration unit, the Group has entered into a €120 million loan facility which was fully drawn during the year ended December 31, 2018.

In February 2017 the Group completed a refinancing of the Senior Secured Term Loans. The Term loans due 2018 were repaid in full from cash balances, the Term Loans due 2020 were extended to March 2022 and a new tranche of €1.4 billion Term Loans due 2024 were issued. The Term Loans due 2018 of €1,228.4 million, Term Loans due 2020 of €1,917.1 million and Term Loans due 2022 of €1,408.9 million were replaced by new Term Loans due 2022 of €3,081.3 million and new Term Loans due 2024 of €1,394.1 million, resulting in a net outflow of €79.0 million for the year ended December 31, 2017. As part of the refinancing the Group also redeemed in full the Senior Notes due 2019 of €1,151.9 million with part of the proceeds from the issuance of the Term Loans due 2024. The Group paid associated debt issue costs of €10.0 million in relation to refinancing of the Senior Secured Term Loans during the year ended December 31, 2017.

In November 2017 the Group issued new Senior Secured Term Loans due 2024 of €2,060.0 million and \$1,660.0 million (€1,427.6 million) and new Senior Secured Notes due 2025 of €550 million. The proceeds from the issuances (together with cash received from INEOS Styrolution) were used to repay the outstanding Senior Secured Term Loans due 2022 and 2024 of €2,580.5 million and \$1,990.0 million (€1,711.2 million) resulting in a net outflow of €804.1 million in relation to the refinancing of the Senior Secured Term Loans. During the year ended December 31, 2017 the Group paid associated debt issue costs of €10.5 million in relation to refinancing of the Senior Secured Term Loans and the issuance of the Senior Secured Notes due 2025.

In December 2019 the Group entered into an amendment agreement to extend the maturity of the Securitization Program to December 2022 and paid associated debt issue costs of €1.2 million in relation to the Securitization Program amendment. During the year ended December 31, 2017 the Group paid debt issue costs of €1.2 million in relation to the Securitization Program amendment agreement which happened in December 2017.

In June 2016, the Group entered into a separate bank loan agreement to fund specific capital expenditure on a freight rail car fleet covering North America for the Oligomers business. The Group has subsequently made a final full repayment of €11.8 million (December 31, 2018: €0.5 million, December 31, 2017: €0.5 million) on the bank loan agreement during the year ended December 31, 2019.

The Group made a drawdown of €6.4 million (December 31, 2018: €1.2 million repayment, December 31, 2017: €0.1 million repayment) on the Securitization Program during the year ended December 31, 2019.

The Group made scheduled repayments of €35.6 million (December 31, 2018: €34.8 million, December 31, 2017: €33.0 million) on the Senior Secured Term Loans during the year ended December 31, 2019.

In November 2019 following the final scheduled repayment on the initial loan of €27.5 million (December 31, 2018 €27.5 million, December 31, 2017 €27.5 million) the term loan facility was amended and restated with a new facility resulting in an inflow of €250.0 million. The Group paid associated debt issue costs of €3.5 million in relation to the renewal of the facility during the year ended December 31, 2019.

In October 2019 the Group entered into a new IKB facility to fund some specific capital expenditure within the Nitriles business, resulting in a drawdown of €1.0 million for the year ended December 31, 2019.

During the year ended December 31, 2018 the Group made the final repayments of €1.8 million (December 31, 2017: €3.6 million) on a bilateral bank loan agreement which funded some specific capital expenditure at the Koln, Germany site.

During the year ended December 31, 2019 the Group made payments of €128.4 million in respect of the capital element of lease liabilities following the adoption of the new accounting standard IFRS 16 Leases.

The Company made dividend payments of €2,066.6 million in the year ended December 31, 2019 (December 31, 2018: €193.8 million, December 31, 2017: €260.9 million).

Net debt

Total net debt as at December 31, 2019 was €5,904.4 million (December 31, 2018: €4,260.6 million). The Group held net cash balances of €982.9 million as at December 31, 2019 (December 31, 2018: €2,071.3 million) which included restricted cash of €206.2 million used as collateral against bank guarantees and letters of credit. The Group had availability under undrawn working capital facilities of €204.1 million as at December 31, 2019.

Total net debt as at December 31, 2018 was €4,260.6 million (December 31, 2017: €4,826.7 million). The Group held net cash balances of €2,071.3 million as at December 31, 2018 (December 31, 2017: €1,366.3 million) which included restricted cash of €223.9 million used as collateral against bank guarantees and letters of credit. The Group had availability under undrawn working capital facilities of €313.9 million as at December 31, 2018.

Quantitative and Qualitative Disclosures About Market Risk

In the ordinary course of our business, we are exposed to a variety of market risks arising from fluctuations in foreign currency exchange rates, interest rates and commodity prices. To manage these risks effectively, we may enter into hedging transactions and use derivative financial instruments, pursuant to established internal guidelines and policies, to mitigate the adverse effects of these market risks. We do not enter into financial instruments for trading or speculative purposes.

In the case of commodities, this exposure principally arises from movements in the prices of the feedstocks we require to make our products. To manage this exposure, we generally acquire raw materials and sell finished products at posted or market-related prices, which are typically set on a quarterly, monthly or more frequent basis in line with industry practice. We seek to minimize reductions in our margins by passing through feedstock cost increases to our customers through higher prices for our products.

Our cash flows and earnings are subject to exchange rate fluctuations. In our European petrochemical business, product prices, certain feedstock costs and most other costs are denominated in euro and British pounds. From time to time, we may enter into foreign currency exchange instruments to minimize the short-term impact of movements in foreign exchange rates.

Critical Accounting Estimates and Judgments

We have reviewed our selection and application of principal accounting policies and related financial disclosures. The preceding discussion of past performance is based upon our consolidated financial information, which has been prepared in accordance with IFRS. Our significant accounting policies are described in Note 1 to the audited consolidated financial information. The application of these accounting policies requires that management make estimates and judgments. On an ongoing basis, we evaluate our estimates, which are based on historical experience and market and other conditions, and on assumptions that we believe to be reasonable. Actual results may differ from these estimates due to actual market and other conditions, and assumptions being significantly different than was anticipated at the time of the preparation of these estimates. Such differences may affect our financial results. We have chosen to highlight certain policies that we consider critical to the operations of our business and understanding our consolidated financial information. These policies have been discussed and agreed upon with our audit committee. We believe the following estimates affect the application of our most critical accounting policies and require our most significant judgments.

The following areas are considered to involve a significant degree of judgment or estimation (this section should be read in conjunction with note 31 to the consolidated financial statements of INEOS Group Holdings S.A. as of and for the year ended December 31, 2019 (included elsewhere in this annual report).

Taxation

Management is required to estimate the tax payable in each of the jurisdictions in which the Group operates. This involves estimating the actual current tax charge or credit together with assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. The calculation of the Group's total tax charge necessarily involves a significant degree of estimation in respect of certain items whose tax treatment cannot be finally determined until resolution has been reached with the relevant tax authority, or, as appropriate, through a formal legal process.

The Group has, from time to time, contingent tax liabilities arising from trading and corporate transactions in the countries in which it operates. After appropriate consideration, management makes provision for these liabilities based on the probable level of economic loss that may be incurred and which is reliably measurable.

The breadth of the Group's structure with operations in many geographic locations makes the use of estimates and assumptions more challenging. The resolution of issues is not always within the control of the Group and can be reliant upon the efficiency of the legal processes in the relevant jurisdictions in which the Group operates, and as a result, issues can, and often do take many years to resolve.

Post-Retirement Benefits

The Group operates a number of defined benefit post employment schemes. Under IAS 19 Revised Employee Benefits, management is required to estimate the present value of the future defined benefit obligation of each of the defined benefit schemes. The costs and year end obligations under defined benefit schemes are determined using actuarial valuations

Impairment

Goodwill impairment testing is performed annually or if there is an indication of impairment. Goodwill impairments tests are based on cash generating units and compare the recoverable amount of the unit with the respective carrying amount. The recoverable amount of an asset or cash generating unit is the higher of its fair value less costs of disposal and its value in use. The value in use is determined using a discounted cash flow method, considering earnings forecasts of the unit. The management of the Group identified the operating segments as cash generating units (CGU) for purposes of testing goodwill for impairment. Each unit or group of units to which goodwill is allocated to shall represent the lowest level within the entity at which the goodwill is monitored for internal management purpose. The goodwill is internally monitored at the level of business units.

Impairment losses on intangible assets and property, plant and equipment are recognised when the recoverable amount of the cash generating unit which includes the asset is lower than the respective carrying amount. In accordance with the definition of a cash generating unit under IAS 36, the individual production plants generally do not represent separate cash generating units, but are part of larger asset groups that form the cash generating units. Since the assessment whether goodwill or property, plant and equipment are impaired is based on long-term business plans for the cash generating units and the determination of an appropriate discount rate, management used significant estimates and assumptions in making these assessments.

Investments

The Group applies IFRS 11 to all joint arrangements. Under IFRS 11 investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor.

The key accounting judgement taken in the preparation of the financial statements relates to our interest in the refining business formerly owned by Group. The refining Business is now owned by Petro China and INEOS Investments (Jersey) Limited ("II(J)L"), which in turn is held under common control by the Group's controlling Shareholders. The Group has an economic interest in II(J)L via non-voting ordinary shares in II(J)L.

The Group has evaluated its interest in II(J)L and in the refining business, and has concluded that it has effective control over II(J)L by virtue of the facts that the Group is subject to exposure and rights to the variable returns from II(J)L, II(J)L is held under common control with the Group's controlling shareholder and has the same directors as the Group. As a result, II(J)L is treated as a subsidiary of the Group, and therefore the

Refining business is treated as a jointly venture under the equity accounting method, and the company reflects its 50% share in the profits and losses of the refining Business in its income statement.

BUSINESS

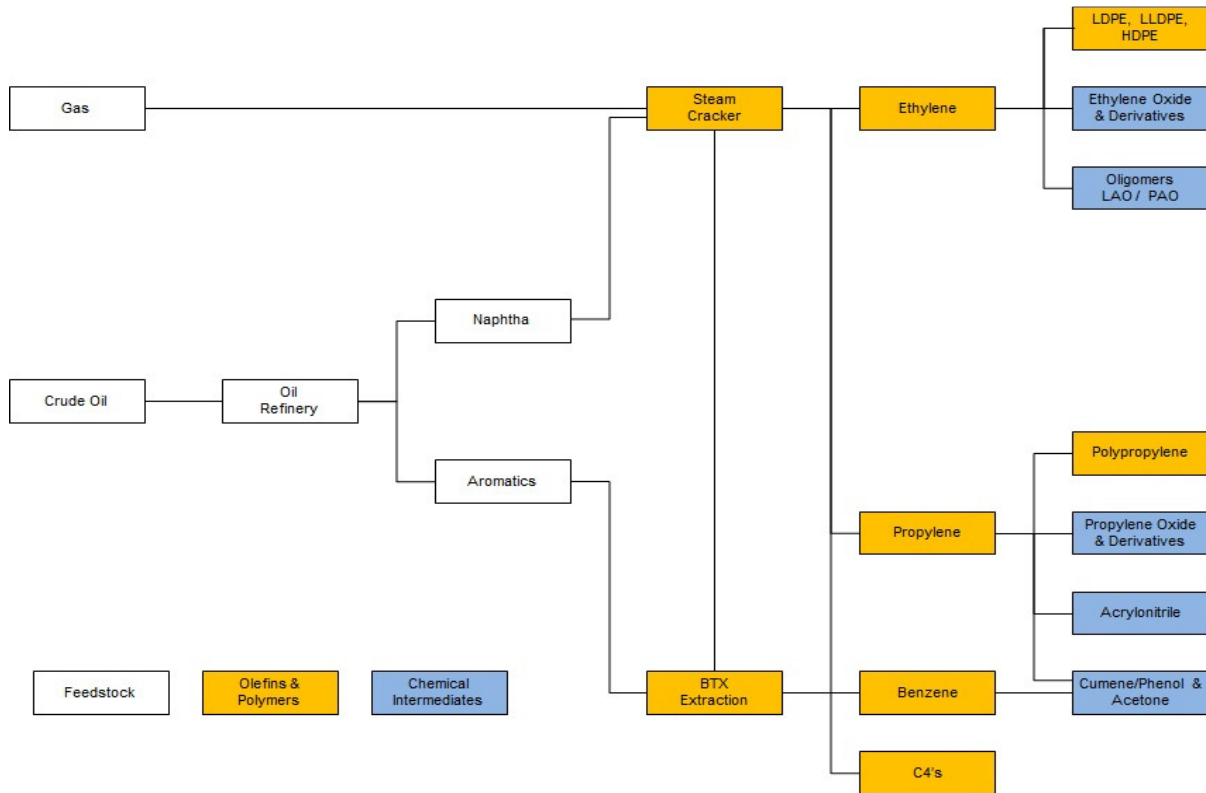
Introduction

We are one of the world's largest chemical companies as measured by revenue. Our business has highly integrated, world-class chemical facilities and production technologies. We have leading global market positions for a majority of our key products and a strong and stable customer base. We operate 32 manufacturing sites in six countries throughout the world. We are led by a highly experienced management team with, on a combined basis, over 100 years of experience in the chemical industry. As of December 31, 2019, our total chemical production capacity was approximately 22,300 kta, of which 56% was in Europe and 44% was in North America.

We operate our business through three segments: Olefins & Polymers Europe, Olefins & Polymers North America and Chemical Intermediates. The products we manufacture are derived from crude oil and natural gas, and include olefins, polymers and various petrochemical products directly or indirectly derived from olefins. Our products serve a broad and diverse range of end markets, including packaging, construction, automotive, white goods/durables, agrochemicals and pharmaceuticals.

Our highly integrated, world class production facilities and technological know how allow us to process raw materials into higher value-added products. In Europe we own two sites integrated with crackers and polymer units. Typically, these two sites account for approximately 76% of our European olefin and polymer volumes. The polyolefins plants on our two major sites in Europe receive more than 95% of their feedstock supply from our integrated crackers. Similarly, in the United States, much of our olefin feedstock requirements for our polymer business is supplied by either our Chocolate Bayou cracker in Texas or by integrated third party facilities, such as the Tesoro facility in Carson, California. We believe that with our highly integrated facilities we are able to capture attractive margins across the value chain, enjoy greater certainty of feedstock supply, reduce logistical costs, improve energy management and optimize our product slate.

The extent of our business integration from upstream to downstream for our major products is summarized as follows:



We benefit from the cost advantages of operating large-scale, well-invested, highly integrated facilities strategically located near major transportation facilities and customer locations. Since January 1, 2007, we and our predecessors have invested more than €7.8 billion (including investments in divested assets) in our production facilities to ensure that they operate efficiently, resulting in integrated, and state-of-the-art production units. We believe these investments allow us to operate at lower cost and higher utilization rates than most of our competitors, and enable us to maintain positive margin and cash flows even during downturns in industry cycles or customer demand. For the year ended December 31, 2019, our revenue was €13.7 billion and our EBITDA before exceptionals was €1.9 billion.

Over the past several years, we have implemented a range of strategic initiatives designed to lower our operating costs, increase our profitability and further enhance our market position. These include fixed asset investments to expand our capacity in higher value products, to enhance productivity at our existing facilities, and to reduce our fixed cost structure through headcount reductions, production line closures and system upgrades. In addition, we have shifted our product portfolio to focus on more differentiated products, exited low-margin businesses and implemented premium pricing strategies designed to improve our margins. We believe these initiatives provide us with a strong platform to drive growth, create significant operating leverage and position us to benefit from volume recovery in our end markets.

Since April 1998, when INEOS was established with the acquisition of the Belgian “Oxide” assets from Inspec plc, we have significantly expanded, both through a series of strategic acquisitions of businesses and assets from major chemical companies, and through organic growth. The combination of INEOS and Innovene in December 2005 represented a transformational milestone for our company, providing global scale and further upstream integration.

The following table provides an overview of our capacity, global market position and leading regional market positions with respect to our key petrochemical products.

Key products	Full-year capacity as of December 31, 2019 ⁽¹⁾ (Kilotonnes)	Selected market positions ⁽¹⁾
Ethylene	4,837	#1 in Western Europe #6 in U.S.
Propylene	1,516	#3 in Western Europe #13 in U.S.
Polyethylene	3,289	#1 in Western Europe #5 in U.S.
Polypropylene	1,744	#5 in Western Europe #5 in U.S.
Ethylene Oxide	980	#1 in Western Europe #8 Globally
Ethanolamines	233	#2 in U.S.* #3 Globally*
Phenol	1,870	#3 in Western Europe* #1 Globally #1 in Western Europe #1 in U.S.
Acetone	1,139	#1 Globally #1 in Western Europe #1 in U.S.
Acrylonitrile	1,324	#1 Globally #1 in Western Europe #1 in U.S.
Linear Alpha Olefins	652	#3 Globally #1 in Western Europe

Sources: Nexant and Ineos -2019

* Merchant market sales

- (1) The assets of INEOS Chemicals Grangemouth Limited and INEOS Commercial Services UK Limited were transferred out of IGH on October 1, 2013 in connection with the Grangemouth Divestiture, and the Lavéra Divestiture assets were transferred out of IGH on 1 July 2014; therefore, their capacity has been excluded from the full year capacity figures. However for the estimation of market ranking for IGH their capacities have been included since these assets remain within the broader INEOS family of companies and there has been no restriction to, or change in, the competitive dynamic that the assets exercise within the European market as a part of the INEOS family of companies. Therefore, in management's view, it is helpful to consider the Grangemouth and Lavéra assets in order to reflect the relative overall commercial strength of the INEOS family of companies, which is the same as that of O&P Europe within IGH.

Olefins & Polymers Europe and Olefins & Polymers North America

In our olefins and polymers businesses, we produce olefins, other cracker products, such as butadiene and benzene, and a broad range of polyolefin polymers. We are among the largest producers of olefins and polymers in the world. The focus of our olefins business in Europe and North America is on ethylene and propylene, which are the two largest volume olefins globally and are key building blocks for polymers. The olefins we make are primarily used as feedstock for our derivatives businesses. In addition, we sell olefins to third-party customers for a variety of industrial and consumer applications, including the manufacture of plastics, rubber and fiber. In our polymers business, we focus on polyethylene and polypropylene.

We operate a total of 18 sites for olefins and polyolefins, including our large integrated olefins cracker and polyolefin facilities at Köln, Germany, Rafnes, Norway, and Chocolate Bayou, Texas, United States and eight polyethylene pipe manufacturing sites within the United States. These facilities support our highly competitive proprietary polyolefin process technologies. The technologies include our cost-effective gas phase polypropylene technology, our specialized technology for high-density polyethylene and our flexible proprietary "swing" technology for both linear low-density and high-density polyethylene.

The North American and European markets for olefins and polyolefins are quite distinct, with separate pricing structures and distribution channels. As a result, each market may experience different rates of growth and levels of return. Therefore, we operate these two businesses separately and report them as two distinct

segments—INEOS Olefins & Polymers Europe and INEOS Olefins & Polymers North America. For the year ended December 31, 2019, our Olefins & Polymers Europe and Olefins & Polymers North America businesses contributed €5.9 billion and €3.2 billion of revenue and €591.4 million and €726.8 million of EBITDA before exceptionals, respectively, excluding inter-segmental eliminations.

Chemical Intermediates

Chemical intermediates are higher-value-added chemical products used as key components in a wide variety of consumer and industrial products. In our Chemical Intermediates business, we utilize olefins as key raw materials and produce a wide range of products including phenol, acetone, alpha olefins, ethylene oxide and derivatives and nitriles.

We have four main product groups within our Chemical Intermediates business: INEOS Nitriles, INEOS Oligomers, INEOS Oxide and INEOS Phenol. Together they produce a wide range of products including phenol, acetone, alpha olefins, ethylene oxide and derivatives, acrylonitrile, ammonia and nitric acid. We have a total of 16 manufacturing sites globally, with many of our plants integrated either directly with their key raw materials on-site, or integrated via pipeline connection.

We are the world’s leading producer of phenol, which is an essential starting material for a wide range of applications in the electrical/electronics, automotive, construction and household/furniture industries. Our main product in the nitriles sector is acrylonitrile, which is used in the production of acrylic fibers and acrylonitrile butadiene styrene plastic. We are also among the largest volume suppliers of linear and poly alpha olefins in the world. According to Nexant, we are the largest producer of ethylene oxide in Western Europe. We have a range of associated products, including ethylene glycol, propylene oxide, propylene glycol and acetate esters. We manufacture and supply high quality catalysts and additives in support of various technologies to major companies around the world, and also to our own manufacturing assets. For the year ended December 31, 2019, our Chemical Intermediates revenue and EBITDA before exceptionals were €6.5 billion and €626.9 million, respectively, excluding intersegmental eliminations.

Business Segments

Set forth below is a discussion of our business along the segment lines of Olefins & Polymers Europe, Olefins & Polymers North America and Chemical Intermediates in the following areas: products, manufacturing, raw materials and energy, transportation, customers and contracts, research and intellectual property and competition.

Olefins and Polymers

We operate two Olefins and Polymers businesses: Olefins & Polymers Europe and Olefins & Polymers North America. Set forth below is a general discussion of the products, manufacturing, research and intellectual property, transportation and competition, followed by a more detailed review of the products, manufacturing, raw materials and energy and customers and contracts, of our Olefins & Polymer Europe business and our Olefins & Polymers North America business.

Products

The following table provides an overview of our key olefin and polymer products and their principal applications. All market positions are provided by Nexant, as measured by average annual capacity for 2019.

Key products	Principal applications	Selected market positions⁽⁴⁾
<i>Olefins and related products</i>		
Ethylene ⁽¹⁾	Polyethylene, polyvinyl chloride, ethylene oxide and styrene	#1 in Western Europe #6 in U.S.
Propylene ⁽²⁾	Polypropylene, acrylonitrile, cumene and propylene oxide	#3 in Western Europe #13 in U.S.
Butadiene	Synthetic rubbers and acrylonitrile, butadiene styrene	#1 in Western Europe #13 in U.S.
Benzene	Styrene, cumene and nylon	#6 in Western Europe

Key products	Principal applications	Selected market positions ⁽⁴⁾
<i>Polymers</i>		
Polyethylene (high density polyethylene, low density polyethylene, linear low density polyethylene)	Films for packaging, agricultural applications, molded products, pipes and coatings	#1 in Western Europe ⁽³⁾ #5 in U.S.
Polypropylene	Molded products, filaments, fibers and films	#5 in Western Europe #5 in U.S.

- (1) In Europe, we consume more ethylene than we produce, which allows us to operate our crackers in Europe at higher operating rates than the industry average. In North America, the olefin crackers at our Chocolate Bayou facility manufacture substantially more ethylene than is required by our polymers and derivatives units in the Gulf Coast region. As a result, we sell substantial amounts of the ethylene that we produce to customers in the Gulf Coast region of the United States.
- (2) In Europe and North America, we consume more propylene than we produce. Our propylene consumption is primarily related to the production of polypropylene, propylene oxide, oxo alcohols, phenol and acrylonitrile.
- (3) According to Nexant, measured by average annual capacity, we are the second largest manufacturer of high-density polyethylene in Europe and the third largest manufacturer of linear low-density polyethylene in Europe.
- (4) The assets of INEOS Chemicals Grangemouth Limited and INEOS Commercial Services UK Limited were transferred out of IGH on October 1, 2013 in connection with the Grangemouth Divestiture, and the Lavéra Divestiture assets were transferred out of IGH on 1 July 2014. However for the estimation of market ranking for IGH their capacities have been included since these assets remain within the broader INEOS family of companies and there has been no restriction to, or change in, the competitive dynamic that the assets exercise within the European market as a part of the INEOS family of companies. Therefore, in management's view, it is helpful to consider the Grangemouth and Lavéra assets in order to reflect the relative overall commercial strength of the INEOS family of companies, which is the same as that of O&P Europe within IGH.

Source for market positions: Nexant and INEOS.

Set forth below is a description of the principal petrochemical products and their applications.

- **Ethylene.** According to Nexant, ethylene is the world's most widely used petrochemical in terms of volume, accounting for over one third of the global production of primary petrochemicals. It is the key building block used to produce a large number of higher value-added chemicals, including polyethylene, polyvinyl chloride via ethylene dichloride and styrene via ethylbenzene. Ethylene is a flammable gas and is a primary olefin obtained in a cracking process as previously described. Because ethylene is a gas, it must be transported either by pipeline or in the form of a highly pressurized and refrigerated liquid, which is expensive.

While ethylene itself has no consumer applications, demand for ethylene is driven essentially by its use as feedstock for various thermoplastics, which are plastics that soften when heated and harden again when cooled, including polyethylene and other polymer derivatives. Aside from being the feedstock for polyethylene production, demand for ethylene is also driven by the manufacture of ethylene oxide and derivatives, ethylene dichloride and ethyl benzene. According to Nexant, the global market for ethylene is forecast to grow at 3.5% per annum through 2024 versus forecast GDP growth of 2.5% during the same period, driven by polyethylene applications such as high-density polyethylene and linear low-density polyethylene.

- **Propylene.** Propylene is a flammable gas which is derived as a co product either of the refinery fluid catalytic cracker process used to make gasoline or of the steam cracking process used to make ethylene. More recently, propylene is also being produced from processes such as propane dehydrogenation and metathesis. Propylene is an important feedstock for a significant number of industrial products and is the main feedstock for polypropylene and acrylonitrile. Propylene is marginally easier to transport than ethylene and may be shipped by pipeline, road, rail or ship.

Global propylene demand is driven essentially by its use as feedstock for various thermoplastics and by the level of demand for propylene derivatives, particularly polypropylene, propylene oxide, acrylonitrile, oxo alcohols, cumene and acrylic acid. Growth in the demand for polypropylene has stemmed from the substitution of non polymers (paper, wood, glass and metal, etc.), due to a relative cost advantage and superior performance. According to Nexant, the global market for propylene is projected to grow at 3.8% per annum through 2024, driven by polypropylene demand.

- **Butadiene.** Butadiene is a gas and is one of the co products of the steam cracking process used to manufacture ethylene and propylene. Butadiene is used primarily in the production of polymers, principally synthetic rubbers such as styrene butadiene rubber, which is used to make tires and other rubber products. Other polymers made from butadiene include acrylonitrile butadiene styrene and styrene butadiene latex. Butadiene is also used to make ethylidene norbornene monomer.

Butadiene demand is driven primarily by growth in consumption of synthetic rubber. According to Nexant, the global market for butadiene is projected to grow at an average of 2.3% per annum through 2024.

- **Benzene.** Benzene is used to produce a number of petrochemical intermediates, such as styrene, cumene for phenol and acetone, cyclohexane and nitrobenzene. It is mainly produced from refinery processes or as a co-product of steam cracker operations.

Styrene is the largest chemical outlet for benzene at around 48% of demand. The second largest outlet for benzene, accounting for 20% of demand, is cumene which is nearly all consumed in phenol production with acetone formed as a co product. For 2019, Nexant estimated the global benzene demand to be 51.0 million tons, with just under 70% being consumed in the production of ethylbenzene for the styrenics industry and cumene for the phenolics industry. Nexant forecasts an average global growth rate in demand of approximately 2.4% per year in the 2019-2024 period.

- **Polyethylene.** Polyethylene is the world's most widely used thermoplastic and is made by the polymerization of ethylene. Polyethylene is often classified by its density, because greater density corresponds with greater material rigidity.

Film is the largest single use of global polyethylene production and the primary driver of demand, representing approximately one half of worldwide polyethylene consumption. Film includes a myriad of end use applications, from food packaging to trash bags, stretch films and shrink films. Blow molding and injection molding are the next largest uses and are also important demand drivers. In the blow molded category, blow molded bottles are the single largest end use. Nexant forecasts an average global growth rate in demand of approximately 3.6% per year in the 2019-2024 period.

- **Polypropylene.** Polypropylene is the world's second most widely used thermoplastic after polyethylene and is among the fastest growing categories of thermoplastics. It is manufactured by the polymerization of propylene. The rapid growth of polypropylene based products reflects the superior cost and performance characteristics of this material. As one of the industry's most versatile polymers, polypropylene is achieving a portion of its growth by displacing other polymers, such as polyethylene and polystyrene.

Various industry experts expect the demand for ethylene and other cracker products and derivatives to grow at an average rate of around 3.0% to 4.0% per annum (subject to macroeconomic assumptions), in the period up to 2019, with higher growth rates in the developing economies and lower growth rates in the more mature OECD economies. According to Nexant, the global polypropylene market is projected to grow at 4.0% per annum through 2024. Nexant expects that the demand for polypropylene in Asia will continue to grow at higher rates than North America and Europe, primarily as a result of growth in the Chinese market.

Manufacturing

Olefins are produced primarily by the steam cracking of hydrocarbon feedstocks. In steam cracking, a gaseous or liquid hydrocarbon feed, such as naphtha, liquefied petroleum gas or ethane, is diluted with steam and briefly heated in a furnace without the presence of oxygen. Typically, the reaction temperature is very high, at around 850°C, but the reaction is only allowed to take place very briefly. In modern cracking furnaces, the reaction time is further reduced to milliseconds, resulting in gas velocities faster than the speed of sound, to improve yield. After the cracking temperature has been reached, the gas is quickly quenched to stop the reaction in a transfer line heat exchanger. The products produced in the reaction depend on the composition of the feed, the hydrocarbon-to-steam ratio and on the cracking temperature and furnace residence time.

Light hydrocarbon feeds, such as ethane, liquefied petroleum gas or light naphtha, yield product streams rich in the lighter alkenes, including ethylene, propylene and butadiene. Heavier hydrocarbon feeds

(full-range and heavy naphthas, as well as other refinery products) yield some of these products too, but also yield products rich in aromatic hydrocarbons and hydrocarbons suitable for inclusion in gasoline or fuel oil. Higher cracking temperatures (also referred to as higher levels of “severity”) favor the production of ethylene and benzene, whereas lower cracking temperatures (lower levels of “severity”) produce higher amounts of propylene, C4-hydrocarbons and liquid products.

Depending on feedstock, varying levels of ethylene, propylene and other by-products are achieved. Ethane produces the most ethylene but the least propylene. Naphtha produces substantially less ethylene, roughly one-third of that of ethane, but produces more propylene and significantly more by-products.

The main polyolefins are the thermoplastics, polyethylene and polypropylene, which are produced by the polymerization of the olefin monomers ethylene and propylene, respectively. While the majority of polyethylene and polypropylene are homopolymers (a combination of the same monomers), a growing proportion is copolymers, (polymers that are produced from a combination of two or more monomers).

Polyolefins are produced using a number of different technologies that are widely available, including one high-pressure process and three low-pressure processes (Solution, Slurry and Gas Phase). All of the technologies are constantly being adapted to improve product qualities and reduce production costs. For commodity products, produced on modern scale technology, the cost structure of these technologies is similar. Increased cost structures for producing specialty products are typically justified by premium margins.

The following is a summary of the four processes:

High-Pressure Process.

This was the original process used to produce polyethylene and is still in use today. This process is a free radical polymerization that does not require the use of a catalyst, operating at pressures above 1,000 and up to 3,500 bar and temperatures from 150° to 340°C. Originally conducted in a high-pressure autoclave, current processes more commonly use a tubular reactor. This process is used to produce low-density polyethylene, characterized by long-chain branching, considerable flexibility and clarity. Because of the high-pressures involved, this process involves higher risk than low-pressure processes and requires expensive and specialized equipment; consequently, fewer high-pressure processes have been constructed in recent years.

Low-Pressure Processes.

These processes typically operate below 200 bar and have lower capital intensity but require the aid of a catalyst. In addition, it is common to add a comonomer (butene or hexene in the case of polyethylene, and ethylene in the case of polypropylene) to tailor the resultant polymer properties.

- ***Solution Process.*** This process operates at temperatures above the melting point of the polyolefin (above 130°C for polyethylene and above 140°C for polypropylene) and employs metallocene or Ziegler-Natta catalysts and a solvent to dissolve the growing polymer chains. This process is best suited to make high-density polyethylene (having very few chain branches, and those branches that do exist are short—only a few carbon atoms in length) and linear low-density polyethylene (having many short-chain branches, which may be contrasted to low-density polyethylene with many long-chain branches). Solution processes have the ability to produce narrow molecular weight distribution polyolefins.
- ***Slurry (or Suspension) Process.*** This process is a continuous low temperature (60°-105°C, 20-35 bar for polyethylene or 60°-85°C, 35-50 bar for polypropylene) process in which polymer forms as a solid particle in the presence of a catalyst while suspended in a liquid slurry. In the case of polyethylene, the polymerization takes place in an inert liquid carrier such as isobutane. In the case of polypropylene, the polymerization takes place in liquid hexane, heptane, or even liquid propylene monomer. When propylene is utilized as the carrier liquid, the process is often referred to as “bulk slurry.” The carrier liquid serves to aid in the removal of heat as it carries the growing polymer particles through the reaction process. The catalyst may be chromium on silica (polyethylene only), Ziegler- Natta, or metallocene. The reactor may be a stirred tank or a pipe-loop reactor, in either case jacketed to aid in removal of the heat of reaction. One or more reactors may be placed in series to broaden the molecular weight distribution and produce bimodal polyolefins. This process is best suited to making high-density polyethylene and homopolymer polypropylene. One advantage of this process over other high-density polyethylene processes is the

ability to make rapid grade transitions, which makes it particularly well suited to the manufacture of specialty polyethylene products.

- **Gas Phase.** As the name implies, polymerization occurs with the solid polymer particles produced on a heterogeneous catalyst in the gas phase. Like the slurry process, the catalyst may be chromium on silica (polyethylene only), Ziegler-Natta, or metallocene. In the reactor, the growing polyolefin particles are fluidized and cooled by the gaseous reactants and/or nitrogen, or sub-fluidized and mechanically agitated. Liquid monomer may be added and flashed to aid in the removal of heat. The reaction takes place at low temperature (80°-100°C for polyethylene and about 60°-85°C for polypropylene) and pressure (15-35 bar). A gas phase process has advantages over slurry and solution processes in that the heat of reaction is very effectively removed and operates with lower hydrocarbon inventories. In addition, high-ethylene content copolymers of polypropylene can be produced in this process. This process is best suited to the manufacture of linear low-density polyethylene, high-density polyethylene and all types of polypropylene, including homopolymer, random copolymer, impact copolymer and soft thermoplastic polyolefin.

Post polymerization, any catalyst is deactivated, the polyolefin is freed of any solvent, unreacted monomer or liquid diluent, and the resulting polyolefin flake or crumb is combined with additives and extruded into pellets prior to sale to downstream fabricators.

Several of these technologies have recently been adapted to run multiple reactions in series, yielding a product with a wider bi-modal molecular weight distribution that provides superior strength or unique characteristics such as high-impact resistance.

All polyolefin groups participate in mature markets and therefore larger plants of all process technologies are being built with capacities of 300,000-500,000 tonnes per year.

Research and Intellectual Property

Our olefins and polymers businesses are supported by technology centers in Houston (United States), Brussels (Belgium), Rosignano (Italy) and Lavéra (France), which in turn support the following highly competitive proprietary process technologies that we believe together form one of the most comprehensive technology packages available in the olefins and polymers industry.

- **Gas phase polypropylene technology.** Our gas phase polypropylene technology enables the cost-effective production of high-performance polypropylene plastics.
- **High-density polyethylene technology.** We own specialized technology for the manufacture of high-density polyethylene that is characterized by low capital investments and low operating costs and is particularly well-adapted to the manufacture of high-performance materials such as high-pressure pipe, one of the fastest growing segments of the high-density polyethylene market.
- **Gas phase polyethylene technology.** This technology is designed to serve the linear low-density polyethylene and high-density polyethylene markets, which are the fastest growing segments of the commodity polyethylene markets. The technology is characterized by low capital investment, low operating cost, low emissions and waste, and no requirement for the use of additional solvents. The technology allows the manufacturer to “swing” the use of installed production capacity between the two grades of polyethylene.

In 2016, following a strategic review of the INEOS Technologies business, the Group decided to cease licensing of its polyolefins technology externally, and to transfer the remaining parts of the INEOS Technologies business to existing businesses within the Group to provide a clearer focus on individual product lines. (Over 75 licenses have been sold historically across the three technologies.)

All license contracts which remain in force continue to be serviced as required to ensure contractual commitments are fulfilled and the associated income streams are collected. There is consequently no change to the income streams expected to be received from licenses already sold, and no change to liabilities associated with these licenses. Typically, when a license is sold, contractual liabilities are limited to no more than the value of the license. However, during the period in which INEOS has actively licensed its polyolefin technologies, no payment with respect to contractual liabilities has ever been made. Although INEOS has ceased licensing of polyolefins technology, it continues to manufacture and sell polyolefin catalysts to third parties. Management

believes that the polyolefin catalyst business continues to have significant growth prospects, that it is complementary to the polyolefins business, and does not adversely affect INEOS's competitive position in its polyolefin markets. The catalyst business is managed within the Olefins and Polymers business in Europe.

Transportation

We have access to a comprehensive transportation network and associated logistics infrastructure through a combination of ownership and long-term contracts. We believe that this network enables us to move feedstocks and products at competitive rates and provides us with access to the merchant market, enabling us to manage demand and supply imbalances across the petrochemical value chain in response to market conditions.

Because pipelines are the most efficient and least expensive mode of transportation, we consider them to be of strategic importance. We own some of the pipelines we use, while others are consortium-owned pipelines in which we hold a stake or are provided to us by dedicated operators under long-term contracts. Other pipelines in Europe may be accessed without a contract as long as the appropriate tariff is paid.

Where we are reliant on access to shipping channels, we either own or hold stakes in the relevant terminals and storage facilities or have secured access to them through long-term contracts. However, we do not own any of the ships we use and instead rely on an extensive network of third-party shipping companies which make capacity available to us on a spot or term contract basis that is managed by our own in-house Marine Assurance Service.

Competition

We face intense competition in the olefins and polymers markets in which we compete. Given that most of the products are commodities, the main competitive criterion is price. In certain segments of the polyethylene and polypropylene markets, where products must satisfy specified technical performance criteria, competition is also based on performance, quality and customer service. A key competitive factor is the ability to manage costs successfully, which requires management focus on reducing unit costs and improving efficiency. The main drivers in this respect include technology, scale, feedstock access, asset utilization, logistics and the ability to execute capital projects efficiently.

Because polymers are easily transported in bulk shipping containers or rail cars, there is significant trade between regions. Globally we compete against a large number of polymer companies, many of which have capacity in multiple regions and who market their products in Europe, Asia and North America. Our competitors include Lyondell-Basell, Sabic, Dow and ExxonMobil.

Olefins & Polymers Europe

Set forth below is a discussion of the products, manufacturing, raw materials and energy, transportation and customers and contracts, for our Olefins & Polymers Europe business.

Overview

The following table provides a breakdown of the revenues and EBITDA before exceptionals for the Olefins & Polymers Europe business for the dates indicated:

	For the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Revenue ⁽¹⁾	5,861.9	6,388.8	5,896.7
EBITDA before exceptionals ⁽²⁾	591.4	671.7	814.0

(1) Revenue excludes revenue from discontinued operations. Excludes inter-segmental eliminations.

(2) For more information on how we calculate EBITDA before exceptionals, see "Presentation of Financial and Non-GAAP Information—Use of Non-GAAP Financial Measures."

Products

In our olefins business, we manufacture ethylene, propylene, butadiene, raffinate 1, benzene, toluene and gasoline blending components. The majority of our ethylene and propylene is either used for polyolefins production or sold to other INEOS businesses as feedstock. Our butadiene, raffinate 1, benzene, toluene and gasoline blending components are sold to other INEOS businesses as well as other producers of synthetic rubber, ABS plastics, oligomers, cumene, styrene and polyurethanes and are traded on the open markets. Olefins & Polymers Europe is one of the largest olefin and polyolefin producers in Europe.

In our polymers business we manufacture High Density Polyethylene (HDPE), Low-Density Polyethylene (LDPE), Linear Low-Density Polyethylene (LLDPE) and Polypropylene (PP).

In HDPE we are active in car fuel tank, milk bottle, high performance pipe and blow moulding applications, most of which require lengthy customer approval processes. Sales from our HDPE asset have grown significantly since 2013.

Our low-density polyethylene products are particularly well-suited to specialty applications in the wire and cable, medical and coatings sectors which also require lengthy customer approval processes. Our coating customers form the backbone of our LDPE business and we also have a significant volume of medical product sales and other specialty grades which generate high margins.

Our linear low-density polyethylene production is primarily sold to customers in the film sector, and, thanks to the use of our proprietary metallocene technology, we have sales of both commodity and specialty grades into film applications like super-tough and sealable films.

In polypropylene our focus has been in high modulus pipe and related applications, highly reinforced impact copolymers for injection moulding, medical and heat sealable BOPP films, where we have a strong global position in sealant material.

Manufacturing

Olefins & Polymers Europe operates large integrated olefins cracker and polymer sites with a total capacity of 5,050 kilotonnes per annum for the production of ethylene, propylene, butadiene, benzene, polyethylene and polypropylene. We own and operate a large naphtha cracker complex in Köln, Germany, and a large gas cracker in Rafnes, Norway. Until the end of 2015, the gas cracker at Rafnes, received all of its feedstock from gas sources in the North Sea but from 2016 the majority of Rafnes feedstock is ethane sourced from U.S. shale gas fields. The naphtha cracker complex at Köln includes two naphtha crackers and a small integrated ethane cracker which consumes ethane produced by the naphtha crackers. The naphtha crackers are also able to consume butane as part of their feed-slate and this flexibility enables the management of feedstock mix in response to changes in economic and market conditions, resulting in the maximization of margins. Both of these cracker sites are either co-located with, or connected by pipeline to, polyolefin plants and to other olefin-derivative units, with market leading economies of scale and operational optionality that permits us to maximise our margins across a broad portfolio of olefin-derivatives.

The cracker complex in Köln, Germany, benefits from being located in the centre of one of the key industrial clusters of Germany, whilst also being able to access feedstocks by pipeline and barge from the Antwerp and Rotterdam area in the Netherlands; one of the world's most competitive naphtha supply regions. It is the third largest cracker complex in Europe, and largest in Germany. With a proven track record of operational excellence, this very reliable asset benefits from considerable downstream integration with a wide portfolio of olefin derivatives on- and off-site, including polyethylene, ethylene oxide, nitriles, oligomers, ABS engineering plastic and synthetic rubber. It can also sell its excess ethylene and propylene to the merchant market via pipelines and the site can also sell propylene by barge using its own jetties on the river Rhine and by rail. In particular, the Köln site is connected to Europe's largest ethylene pipeline network owned by ARG, a company jointly owned by INEOS and four other European petrochemical companies.

The Noretyl gas cracker in Rafnes has been modernized and recently expanded to its present annual capacity of 645,000 tonnes of ethylene. It is also co-located with on-site derivatives assets, namely O&P Europe's LDPE plant and EDC/VCM plants owned by INOVYN, a related company. In addition, the cracker is connected to dedicated, wholly owned ethylene liquefaction and export terminals from which it exports products to INEOS derivatives and the merchant market in North West Europe.

While our two standalone polyethylene and polypropylene sites in Lillo and Geel in Belgium are not co-located on cracker sites, they are connected to major olefin pipelines. Our Lillo site also benefits from connection to INEOS' ethylene terminal, which is Europe's largest, at the INEOS Oxide site in Zwijndrecht, Antwerp and indirectly with the greater ARG pipeline. In both cases, this infrastructure provides these facilities with flexibility in sourcing feedstock. Both of these sites benefit from easy access to large polyolefin markets.

Since acquiring Olefins & Polymers Europe, we have undertaken a significant improvement and restructuring program across our assets to enhance their long-term cost-competitiveness. In general, cost efficiencies have been substantially improved across all aspects of the business. The asset base has also been added to via the acquisition in 2007 of a 50% share in the Noretyl gas cracker at Rafnes and full ownership of the associated polyolefins at Bamble in Norway. On July 1, 2015, we acquired the other 50% share in the Noretyl gas cracker from INOVYN, a related party.

Significant investments have been made to enhance our assets' capabilities, including the building of a swing furnace on the Köln cracker and the conversion of its linear low density polyethylene unit to highly differentiated metallocene production (a proprietary catalyst technology that permits the production of super-tough film grades). A key improvement theme of our polyolefins business has been to creep capacities and reduce plant costs. We aim to run our downstream assets as close to their maximum capacity as is operationally prudent while seeking to constantly improve the sales portfolio by focusing on products that can command sustainably higher margins in bottom of cycle conditions over commodity grades, which we refer to as "*differentiated*" products. We take advantage of our proprietary process technologies, such as at Lillo (Innovene S), at Geel (Innovene P) and at Köln (Innovene G). These state of the art advanced technologies allow us to manufacture distinctive resins.

The most substantial recent investment that was made in our assets was in 2015 at Rafnes, with the completion of a new ethane import tank and new ethane furnace. These investments were timed to coincide with the commission of NGL/LPG export facilities in the U.S. through which we have secured long-term, advantaged U.S. gas feedstock, associated with the shale oil and gas developments in that country. This new source of ethane complements our existing local sources of feedstocks.

Our manufacturing facilities are periodically shut down for scheduled turnarounds, to carry out necessary inspections, testing to comply with industry regulations and any maintenance activities that may be necessary. Olefins crackers typically undergo major turnarounds every five to six years, with each turnaround lasting four to six weeks. Our Rafnes gas cracker is on a seven to nine year turnaround cycle. Polymers units are subject to more frequent maintenance shutdowns, typically one turnaround every one or two years, but in this case each turnaround lasts only seven to 10 days. A significant focus in prior years was placed on enhancing process safety and further improving reliability by initiating a series of process safety audits and reliability reviews to give assurance about the adequacy of our critical safety management systems and that the necessary plans are in place to drive very high levels of reliability.

Raw Materials and Energy

The primary feedstocks for our olefin crackers are naphtha and natural gas liquids, namely ethane, propane and butane. The use of naphtha results in the production of a significant amount of co-products such as propylene, butadiene and benzene, as well as Raffinate 1 and gasoline blending components. The use of natural gas liquids results in the production of a smaller amount of these co-products. From 2016, our Köln naphtha requirements have been sourced from several external suppliers under contract, with the balance being purchased in the open market.

We continue to look for sources of attractive feedstock and in 2012 we announced the completion of supply and infrastructure agreements that secured a significant volume of ethane feedstock from the U.S. for use in our Norwegian cracker. Since then, further ethane and LPG supply agreements have been secured from these advantaged US shale gas sources to complement our existing local sources. In addition, a new infrastructure contract was signed in 2015 which allowed us to export feedstocks from the new Enterprise facility at Morgan's Point on the Texas coast. Contracts for eight "Dragon" vessels to transport these feedstocks to Europe were signed in 2013, with all ships having now been delivered and fully operational.

The first shipment of ethane from the Marcus Hook Facility in Pennsylvania was exported from the U.S. in March 2016 on the JS INEOS Intrepid, and the first ethane cargo from Morgan's Point was exported in September 2016 on the JS INEOS Insight.

Although energy is generated at several of our sites, including as part of petrochemical manufacturing processes, we are a significant net purchaser of both electricity and gas. In the past we have typically procured our requirements from local producers or utilities at local market prices, however, we are increasingly moving to a more integrated process to take more advantage of our scale and changing energy markets across the wider INEOS Group, including our ultimate parent company and its other subsidiaries.

Customers and Contracts

In total, we had approximately 920 customers worldwide, during the twelve-month period ended December 31, 2019, who are serviced by an in-house team of business, sales and technical service personnel. Customers of our olefins business tend to be major European petrochemical companies, who use our products to make a wide range of polymers, synthetic rubber, intermediates and specialty chemicals. In our downstream business we sell to a large number of companies in a variety of plastic conversion industries involving rigid and flexible packaging, pipe, car fuel systems, rotomoulding, wire and cable, medical and other industrial and consumer products. In Olefins & Polymers Europe as a whole, in the twelve-month period ended December 31, 2019, no single customer accounted for more than 10% of our annual revenues and our top 10 customers accounted for less than 34% of our annual revenues.

In our olefins business the majority of our ethylene, propylene, raffinate 1 and benzene production is sold to other INEOS olefin-derivative businesses at market-related transfer prices. For the twelve-month period ended December 31, 2019, approximately 76% of the olefin requirements of our downstream polyolefin business was satisfied by internal supply from our own crackers, while the rest was sourced from the open market. Our remaining production of ethylene, propylene, butadiene, raffinate 1, benzene, toluene and gasoline blends are sold directly to customers predominately via contracts of one to three years duration, with pricing either freely negotiated, cost-plus or market-referenced such as ICIS or Platts. Product pricing can therefore change daily or monthly.

In our polymers business sales are mainly conducted under contract. The majority of these contracts are annual with longer durations by exception. Pricing in these contracts is cost plus or based on market references, such as ICIS or Platts, or negotiated on a monthly basis.

In November 2019, our polymer business announced a partnership with Viridor where we joined forces in a world-leading project that will produce a range of high-specification polymers with up to 50% or more post-consumer recycled content. The collaboration will draw on high-level scientific expertise from both companies. Since the third quarter of 2019, INEOS has been able to offer a range of polyolefins which contain up to 50% recycled content without sacrificing on performance.

Olefins & Polymers North America

Set forth below is a discussion of the products, manufacturing, new materials and energy and customers and contracts, for our Olefins & Polymers North America business.

Overview

The following table provides a breakdown of the revenues and EBITDA before exceptionals for the Olefins & Polymers North America business for the dates indicated:

	For the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Revenue ⁽¹⁾	3,200.8	4,044.1	3,573.9
EBITDA before exceptionals ⁽²⁾	726.8	798.0	896.0

(1) Revenue excludes revenue from discontinued operations. Excludes inter-segmental eliminations.

(2) For more information on how we calculate EBITDA before exceptionals, see "Presentation of Financial and Non-GAAP Information."

Products

Our olefin products—ethylene, propylene, butadiene, mixed butenes, and crude benzene—are the basic building blocks for a vast family of petrochemicals produced by our chemical manufacturing customers. A significant portion of our olefin output serves as feedstock for our polymers production, while the remaining output is sold to affiliates and third parties.

The type of polyethylene we currently manufacture in Olefins & Polymers North America is slurry loop high-density polyethylene. Our high-density polyethylene products are sold to customers for use in manufacturing food packaging, household chemical containers, pipe, injection-molded products such as caps and closures, and crates and pails. Our polypropylene is transformed into crates and trays, roofing membranes, food packaging, carpets, automotive products, DVD cases, rope and toys. During the twelve-month period ended December 31, 2019, consumables such as caps, closures, film and packaging represented a majority of our polymer sales volume.

O&P North America also manufactures Polyethylene pipe through our subsidiary, WL Plastics. WL Plastics is solidly positioned as a leader in the North American plastic pipe industry. WL Plastics is a leading manufacturer and distributor of HDPE tubular products for fluid and material transfer applications primarily for energy and industrial infrastructure applications with a deep product mix of pipe diameters of 1/2 inch to 54 inches.

INEOS USA Oil & Gas is an operator of onshore U.S. oil & gas wells in the Austin Chalk formation in Texas. The Giddings Field assets produce crude, wet, and dry gas which is sold to third parties. The company plans to develop modern horizontal wells.

O&P North America is a fully integrated business from the production of hydrocarbons through to fabrication of polyethylene pipes.

Manufacturing

The key assets of Olefins & Polymers North America include the following:

- the Chocolate Bayou, Texas, facility, one of the largest cracker installations in North America;
- the Battleground, Texas, facility, one of the largest North American high-density polyethylene facilities and integrated with the Chocolate Bayou site through a company-owned pipeline system;
- a 50% joint venture in the Horizon high-density polyethylene plant located at Chevron Phillips' Cedar Bayou, Texas, site;
- the Carson polypropylene plant—integrated with the Tesoro refinery at Carson, California;
- the Hobbs fractionation unit, which can process 1,455 kta of natural gas liquids feedstock for our Chocolate Bayou cracker;
- the Gemini joint venture with Sasol Limited, a world-scale polyethylene line at the Battleground manufacturing facility on the Houston ship channel that started-up at the end of 2017;
- the WL Plastics fabrication and distribution locations include Casper, Wyoming; Rapid City, South Dakota; Cedar City, Utah; Elizabethtown, Kentucky; Statesboro, Georgia; Snyder, Texas; and Bowie, Texas. The new Lubbock, Texas plant came online in 2019; and
- the Giddings Field Oil & Gas assets have 108 operated wells spread across 44,701 net mineral acres in Austin, Brazos, Burleson, Fayette, and Washington counties in Texas.

All of the olefins crackers are either co-located with, or connected by pipeline to, polymers units, enabling them to realize economies of scale, improve their facilities' energy management and minimize logistics costs.

In North America, our olefins and polymers business comprises five sites including major facilities in Chocolate Bayou, Texas, and Battleground, Texas. In 2019, the Chocolate Bayou and Battleground facilities

(including our 50% share of the Gemini HDPE joint venture output) had total production volumes of approximately 3,911 kilotons inclusive of olefins, polyethylene and polypropylene finished goods.

Chocolate Bayou is one of the largest cracker installations in the Gulf Coast region and, according to Nexant, is the fifth largest site by ethylene capacity in the United States. The site has access to cavern storage, rail service, and approximately 500 miles of pipeline, either owned or leased by us. This allows integration to our polymer assets and our Hobbs fractionation unit, and permits the site to place its surplus ethylene and other products either directly in the local merchant market or in storage to bridge time lags between production and consumption. The scale of the Chocolate Bayou crackers should also enable the leveraging of the facility's infrastructure and workforce. Another key strength of the facility is the crackers' flexible design. While their main feedstock is natural gas liquid gas based feedstock, which is obtained from various sources, including a significant amount from our natural gas liquid fractionator near Hobbs, New Mexico, the commodity markets and Marathon's refinery in Texas City, Texas, the facility also has the ability to process naphtha. This flexibility enables management of feedstock mix in response to changes in economic and market conditions. All of our polymers facilities in North America are either connected with the Chocolate Bayou crackers or are adjacent to facilities operated by third parties with whom we have feedstock arrangements.

For our North American polymers business, our key facility is the site at Battleground, Texas, which hosts both polypropylene and high-density polyethylene production as well as being the location of our completed Gemini 50/50 joint venture to manufacture high-density polyethylene with Sasol Limited. Gemini is a world-scale Polyethylene plant with a significant commitment to the bimodal HDPE market. Our high-density polyethylene site is one of the largest high-density polyethylene complexes in North America. Battleground is integrated with Chocolate Bayou by way of a pipeline system owned by INEOS. Complementing our Battleground polymers production is our Carson polypropylene unit and our 50% ownership interest in the Cedar Bayou Horizon high-density polyethylene line. The Horizon line, which is operated by Chevron Phillips, is one of the largest single slurry loop high density polyethylene lines in North America.

Raw Materials and Energy

Our procurement efforts remain focused on expanding access to low cost materials, services and equipment and creating independence from sole or limited sources of supply. We are connected via pipeline to multiple hydrocarbon suppliers at Chocolate Bayou Works and Battleground Manufacturing Complex to ensure a secure supply at reasonable costs.

We, together with our North American affiliates, have centralized the purchasing of energy, natural gas, rail routes and propylene (including refinery-, chemical- and polymer-grades), providing scale, common voice in the market and, in the case of propylene, flexibility to manage our supply and demand. Our olefins and polymers business primarily uses naphtha and NGLs as the basic feedstocks for our olefins crackers.

Although most external feedstock supplies of the business are available from a variety of third parties, our Carson polypropylene plant depends on raw materials from the Tesoro refinery located on the same site. Most of the petrochemical feedstocks purchased from Tesoro are part of a long-term contractual agreement. In addition, a substantial proportion of our feedstock requirements is also obtained on the commodity markets. We manage the procurement and trading of our feedstocks internally.

Our U.S. ethylene production capacity exceeds our U.S. consumption. We, thus, sell ethylene on the merchant market through supply contracts and swaps with other petrochemical and refining companies. Our propylene production is lower than consumption. To address this shortfall, we purchase propylene on the merchant market through supply contracts and swaps with other petrochemical and refining companies.

Although energy is generated at several of our sites, including as part of petrochemical manufacturing processes, we are a significant net purchaser of both electricity and gas. Typically, we procure our requirements from local producers or utilities at local market prices.

Customers and Contracts

We work with customers to meet evolving market requirements. We market our products both directly—business to business—and through authorized distributors. We have a small base of olefins customers and approximately 350 polymer customers worldwide. Our industrial customers include a large number of companies in a variety of downstream industries involving rigid packaging, fibers and flexible packaging.

Most of our olefins sales are by multi-year contracts, with prices subject to monthly industry pricing. Our polymer sales are to customers in the merchant market and are made either on contract or spot terms. Some contracts are based on negotiated prices, while others are based on pricing formulas or refer to spot market rates.

WL Plastics has a premium value proposition to their approximately 125 domestic customers with industry leading response times, scalable low-cost manufacturing with longer run times and a reputation for reliability.

Chemical Intermediates

Overview

Set forth below is a discussion of the products, manufacturing, raw materials and energy, customers and contracts, research and intellectual property and competition for our Chemical Intermediates activities. This includes the following key businesses: INEOS Nitriles, INEOS Oligomers, INEOS Oxide and INEOS Phenol.

The following table provides a breakdown of the revenue and EBITDA before exceptionals of the Chemical Intermediates business for the periods and as of the dates indicated:

	For the year ended December 31,		
	2019	2018	2017
	(€ in millions)		
Revenue ⁽¹⁾	6,486.8	7,855.0	7,589.4
EBITDA before exceptionals ⁽²⁾	626.9	818.1	819.4

(1) Excludes inter-segmental eliminations.

(2) For more information on how we calculate EBITDA before exceptionals, see "Presentation of Financial and Non-GAAP Information."

Products

The following table provides an overview of our key chemical intermediate products and their principal applications:

Business	Key Products	Principal Applications
INEOS Nitriles	Acrylonitrile	Acrylic fibers, acrylamide and acrylonitrile butadiene styrene and styrene acrylonitrile polymers
	Acetonitrile	Performance solvent for pharmaceuticals industry
	Hydrogen Cyanide	Gold extraction, perspex manufacture and animal feeds
	Acetone Cyanohydrin	Chemical intermediates and perspex manufacture
	Ammonium Sulphate	Fertilizers
	Acrylonitrile catalysts	Used in the manufacture of Acrylonitrile
	Ammonia	Intermediate used to produce a range of products, including nitric acid, polymer resins and textiles
	Nitric Acid	Polyurethanes

Business	Key Products	Principal Applications
INEOS Oligomers	Linear alpha olefins	Co monomers for high performance polyethylene, plastomers and elastomers, feedstock for synthetic lubricants, surfactants, detergents, lubricant additives, paper sizing chemicals and various other specialty chemicals, base stock for drilling fluids
	Polyalpha olefins	Base stock and blending component for the production of high performance synthetic lubricants, gear oils and greases.
	Isoolefins, Isoparaffins and Specialties	Base stock and intermediates for the manufacture of tires, specialty acids, agrochemicals, fragrances, cosmetics and blowing agents
	GAS/SPEC specialty amine solvents & additives	Customizable solvents for natural gas processing, various refining applications, tail gas treating, LNG, hydrogen and ammonia production, ethane cracker feed treatment, and coal degasification.
	GAS/SPEC process technology packages	Process technology packages for design of new specialty amine treatment systems and revamp/optimization of existing systems
INEOS Oxide	Ethylene oxide and derivatives, including ethylene glycol, ethanolamines, alkoxyates, glycol ethers	Polyester resins, fibers, film, antifreeze/coolants, industrial detergents, agrochemicals, surfactants, cosmetics, construction chemicals, glyphosates, pharmaceuticals, synthetic lubricants
	Propylene oxide and derivatives, including propylene glycols	Polyurethane foam, polyester resins and de-icing
	Ethylidene norbornene monomer	Ethylene propylene diene monomer rubber
	Ethyl, propyl and butyl acetates	Surface coating, inks, paints, process solvents
INEOS Phenol	Phenol	Bisphenol A for the production of polycarbonates and epoxy resins, phenolic resins, pharmaceuticals and nylon intermediates
	Acetone	Methylmethacrylate, polymethylmethacrylate, bisphenol A, pharmaceuticals, solvents, coatings, personal care products and agrochemicals
	Cumene	Primary raw material for the production of phenol and acetone
	Alphamethylstyrene	Heat resistant thermoplastics, tackifiers, coatings and antioxidants
Other businesses	Catalyst and Additives	Polymers and vinyls

INEOS Nitriles. Our main product in the nitriles sector is acrylonitrile. According to Nexant, measured by average annual capacity for 2019, we are the largest manufacturer of acrylonitrile in the world. The primary applications for acrylonitrile are acrylic fiber and acrylonitrile butadiene styrene plastics. We employ safeguards to ensure the safe handling of Nitriles' products including the use of specially designed railcars and pipelines for transportation to nearby customers. We believe that our competitive position in the worldwide acrylonitrile market is strengthened by our proprietary fluid bed acrylonitrile process and related catalysts.

In addition, the Nitriles business produces acetonitrile, hydrogen cyanide, acetone cyanohydrin, ammonium sulphate and oxazole, and produces catalysts for the used in the acrylonitrile manufacture.

In 2019 the ammonia and nitric acid business was transferred to INEOS Nitriles from INEOS Enterprises. Ammonia production finds major application in the fertilizer industry, but in the case of INEOS Nitriles is used in the production of acrylonitrile, nylon and other non-fertilizer applications. Nitric acid is similarly used in the fertilizer industry but for INEOS Nitriles is primarily used in the manufacture of polyurethanes. In this highly competitive market, we benefit from a cost base lower than that of many of our competitors, having an advantaged location within our Köln integrated petrochemical site and supplying 80% of our customer volume directly by pipeline.

INEOS Oligomers. According to Nexant, we are the third largest linear alpha olefins producer measured by average annual capacity for 2019. Nexant also believes we are one of the largest producers of polyalpha olefins worldwide. As a “full range” linear alpha olefins producer, we manufacture a broad range of co-produced linear alpha olefins and must manage production levels consistent with our ability to utilize or sell the entire product slate. As different segments of the linear alpha olefins market tend to grow at different rates, the business has developed a variety of internal and external outlets for the key products, which allow the plants to operate with minimal constraints. Our unique technology does allow some flexibility to adjust our product slate, in order to emphasize certain linear alpha olefins products and deemphasize others as demand fluctuates. Linear alpha olefins are used primarily as comonomers in the production of polyethylene, as feedstock in the production of poly alpha olefins, detergents, and lubricant additives and as drilling fluids. Poly alpha olefins are primarily used in synthetic motor oils, transmission fluids and other demanding lubricant applications such as wind turbines.

Specialty Oligomers products are manufactured from crude C4 and/ C5 olefinic streams and are used as base stock or intermediates in a variety of high margin applications such as the manufacture of tires manufacture, specialty acids, agricultural chemicals, plastic additives, specialty chemicals, fragrances and cosmetics.

Our GasSpec™ specialty amines, which are high performance specialty chemical formulations, often patent protected, are used to remove hydrogen sulphide and carbon dioxide from natural gas, various refinery streams, hydrogen & ammonia production streams, ethane cracker feed gas, and coal degasification product gas. GasSpec™ operates a fully equipped laboratory in Freeport, Texas, that provides comprehensive analytical support to our customers.

INEOS Oxide. We manufacture ethylene and propylene oxide, from which we produce a range of derivatives including ethylene glycol, propylene glycol, EO and PO alkoxyates and glycol ethers. We believe, as measured by expected aggregate annual capacity for 2019, we are the largest producer of ethylene oxide and ethylene glycol in Western Europe and one of only two commercially viable producers of ethylidene norbornene monomer in the world.

Ethylene oxide is a highly reactive, flammable and toxic molecule. As a consequence, ethylene oxide producers typically use a significant proportion of their ethylene oxide for captive production or sell it to third parties located reasonably close to, or on, their ethylene oxide production sites. The majority of ethylene oxide produced in Western Europe is used for captive production and there are virtually no ethylene oxide imports into, or exports from, Western Europe. INEOS Oxide uses its ethylene oxide production for the captive production of ethylene glycol, ethylene oxide derivatives and sales to third parties on its sites in Antwerp and Koln.

Our ethylene oxide derivatives include ethanolamine, a broad range of alkoxyates, and glycol ethers. We own and operate one of the world’s largest ethanolamine units and produce a family of molecules that are used in applications such as agrochemicals, surfactants (used in personal care products and detergent formulations), cement additives, textile chemicals, metal working fluids, electronics and pigments. We have five alkoxyate reactors in Antwerp, which we use to make a broad range of alkoxyates used in construction, household detergents, industrial cleaners, cosmetics, pharmaceuticals, textiles, synthetic lubricants and paint & coatings. We also operate a glycol ether asset in Antwerp producing a range of methyl, ethyl and buthyl glycol ethers used as solvents in surface coatings and inks, and as jet fuel de-icers.

We are one of only two commercially viable suppliers of ethylidene norbornene (ENB) monomer globally and the only producer in Europe. Ethylidene norbornene monomer is used in the production of ethylene propylene diene monomer (EPDM) rubber, a high-performance rubber that is both wear and weather resistant

and is increasingly used in place of conventional rubbers in automobiles, roofing materials and household appliances.

Ethylene glycol is used primarily as a feedstock to produce polyethylene terephthalate for film, fiber and resin and in a variety of other industrial applications including antifreeze/coolants for automotive vehicles.

We have the largest Ethyl acetate plant in Europe with the product being primarily used as an active solvent in formulations for protective coatings (lacquers and enamels), inks, and adhesives. It is also used as a process solvent in pharmaceuticals and organic chemical synthesis. Because it is a naturally occurring compound in many fruits, ethyl acetate has found applications in the food industry as a flavouring component and process extractant for applications such as decaffeination of tea and coffee.

INEOS Phenol. According to Nexant, measured by average annual capacity in 2019, we are the largest producer of phenol in the world. Our global manufacturing capacity is two times that of our closest competitor. Phenol is a primary material for a large number of chemical products. In recent years, the use of phenol for the production of bisphenol A, an intermediate product used to produce polycarbonate and epoxy resins, has increased substantially and is now the largest phenol application. Polycarbonate is an engineering thermoplastic material which, due to its superior optical qualities, structural strength and weight, has a wide range of uses including; CDs and DVDs, optic fibers, optical lenses, bulletproof glass and other ballistic resistant materials, structural parts in cars and trucks and housings for electrical household appliances and office equipment. Epoxy resins are used in a wide variety of applications including coatings, adhesives and composite materials, such as carbon fiber.

Phenol is also combined with formaldehyde to produce phenolic resins, which represent the second largest commercial use of phenol. Phenolic resins are used in a wide range of applications, including plywood and oriented strand board, furniture, insulation materials, laminates, foundry molds and adhesives.

The next largest application for phenol is as the raw material for caprolactam and adipic acid for the production of nylon intermediates. Major uses include engineering thermoplastics and synthetic fibers for clothing and carpeting.

Since phenol and acetone are produced together in a fixed ratio, we are also the largest producer of acetone in the world with more than twice as much capacity as the next largest competitor. The largest commercial use of acetone is for solvents, either through the use of acetone itself as a solvent or through the acetone-based production of solvents. The second largest commercial use of acetone is the manufacture of methylmethacrylate. Methylmethacrylate is used to manufacture polymethylmethacrylate resins, including acrylic sheets and compounds for molding and extrusion. Acrylic sheets and compounds are used in a wide range of architectural and industrial applications, ranging from point of sale retail displays to glazing and decorative light panels. The third major use of acetone is in the production of bisphenol A.

Alphamethylstyrene is formed as an intermediate product during the phenol and acetone production process. It is used in heat resistant thermoplastics, tackifiers, coatings and antioxidants.

Manufacturing

INEOS Nitriles operates from four sites, two in the United States and two in Europe. Our Green Lake, Texas, facility is one of the largest facilities for acrylonitrile and related products in the world. The second U.S. site is in Lima, Ohio, and is an integrated nitriles complex, producing acrylonitrile and related products, with access to feedstock from an adjacent refinery. Lima also manufactures acrylonitrile catalysts for other facilities on a global basis. In Europe, we manufacture acrylonitrile, ammonia and nitric acid in Köln, Germany. In December 2019 we announced the closure of the Seal Sands acrylonitrile production asset.

INEOS Oligomers operates from five sites split across Europe and North America. Joffre, in Alberta, Canada, has access to low cost ethylene feedstock derived from Canadian gas. The other North American assets are located in La Porte, Texas and it manufactures polyalpha olefins while the business commissioned at the start of 2020 a new 420,000 tonnes linear alpha olefins plant at Chocolate-Bayou, TX. The new plant is co-located on the O&P Chocolate-Bayou cracker site. In Europe, production of linear alpha olefins and polyalpha olefins occurs in Feluy, Belgium, and specialty oligomers are manufactured in Köln, Germany. In addition, construction is underway for a new 120,000 tonnes poly alpha olefins plant, both at Chocolate Bayou, Texas, which we estimate will be operational in the second quarter of 2020.

INEOS Oxide operates from four main sites, in Antwerp, Belgium, Plaquemine, Louisiana, United States, Köln, Germany and Hull, United Kingdom. Our largest production facility is at the Antwerp complex in the second largest European harbor - and second largest chemical region in the world. This site has direct or indirect connections to three major ethylene pipelines linking it to most ethylene crackers in Northwest Europe as well as the only deep-sea terminal for Ethylene not integrated in a cracker complex. It also has pipeline connections to pipelines for nitrogen, oxygen, natural gas and ship/rail logistic capabilities for sourcing bulk feedstock of propylene oxide, butadiene, acetic acid and alcohols. In addition, the site has its own jetty facility on the Schelde River which links it to the port of Antwerp and the Amsterdam Rotterdam Antwerp (“ARA”) pipeline and with rail and road tanker loading facilities. We produce ethanolamine at our Plaquemine plant located on the Mississippi/Gulf Coast of the United States. This is a prime location for chemicals production due to advantaged access to feedstock and direct access to sea jetties and close proximity to our customer base.

INEOS Phenol operates phenol and acetone plants at sites in Gladbeck, Germany; Antwerp, Belgium; and Mobile, Alabama in the United States. All three sites use our own proprietary technology, which has significant advantages in energy consumption and other factors over competing technologies. Our Gladbeck plant is located in the industrial heartland of Germany known as the *Ruhrgebiet*. It receives its raw materials by pipeline from an INEOS owned cumene plant (Marl), as well as other suppliers, and the finished products go out by rail and truck with most customers situated within a 100 kilometer radius. It is the largest single train unit in the world. Our Antwerp site, the largest capacity site in the world, is located in the Antwerp industrial area with direct deepwater access. All of the cumene reaches the site via ship. The majority of the site’s end-products are transported to customers by ship, with the balance being transported by road. Our Mobile, Alabama, United States, plant is located on Mobile Bay on the Gulf of Mexico, close to several major consumers. All cumene is supplied via ship mainly from an INEOS owned cumene plant (Pasadena, Texas) or producers on the Gulf Coast or Asia. About half of the phenol and acetone produced is transported via ship and barge while the balance goes out by rail and road. INEOS Phenol operate two cumene plants at sites in Marl, Germany and Pasadena, Texas.

We manufacture catalysts for polyethylene, polypropylene, acrylonitrile and maleic anhydride, and have established toll-manufacturing arrangements for polypropylene catalysts, ethylene dichloride oxychlorination catalysts and some polyethylene catalysts, and for process additives for the polyvinylchloride process. Manufacturing facilities exist in Lima, Ohio, United States (acrylonitrile catalysts), Sarralbe, France (polyethylene catalysts) and Dahej, India (polyolefin catalysts).

Raw Materials and Energy

Acrylonitrile is manufactured from propylene, ammonia and air with the use of a special catalyst. Acrylonitrile is toxic and flammable and, unless chemical stabilizers are added for storage and shipment, can undergo an explosive chemical reaction. We employ safeguards to ensure the safe handling of nitriles, including the use of specially designed railcars and pipelines for transportation to nearby customers. The key raw material for ammonia production is natural gas. Natural gas is supplied from utility companies via pipeline from the German natural gas grid to the Köln plant to manufacture ammonia.

Ethylene is the feedstock for the production of INEOS Oligomers’ range of linear alpha olefins (Hexene-1 to C20+). At our Joffre plant in Alberta, Canada, ethylene is supplied from the neighboring, globally cost advantaged ethane Nova cracker complex facility. Ethylene is secured through a long term supply agreement. In Europe, the Feluy alpha olefin plant is supplied in ethylene from Antwerp by pipeline connected to the ARG and via the new INEOS deep sea Antwerp terminal. Ethylene supply is secured through INEOS O&P toll agreements and spot purchases. The new Chocolate Bayou Alpha olefins plant is supplied in ethylene mainly from the adjacent INEOS O&P Chocolate Bayou ethane crackers. INEOS Oligomers produces Poly alpha Olefins at the Laporte, TX and Feluy plants using selective INEOS Oligomers supplied Alpha Olefins cuts. The INEOS C4 chemical derivatives Di-isobutylene uses as feedstock Raffinate 1 which is produced at the INEOS Cracker complex in Cologne.

INEOS Oxide’s principal raw material is ethylene. Our supply flexibility is bolstered by access to or ownership of major ethylene deep sea terminals connected to the ARA pipeline network. We have short and medium-term contracts of one to five years that generally specify minimum and maximum volumes with several different suppliers. The cost of our key feedstock ethylene supply is based on a discount to the current Northwestern European contract price.

Cumene, which is made from the combination of benzene and propylene, is INEOS Phenol’s main raw material. INEOS owns cumene plants located in Marl, Germany, which is pipeline connected to the Gladbeck site and in Pasadena, Texas. We acquire the remaining cumene from our suppliers pursuant to four different

types of contractual arrangements. Under a toll contract, we supply the benzene and propylene required for the production of cumene to our suppliers, who then convert these inputs into cumene. For this service, we are charged a conversion and capacity reservation fee reflecting the supplier's costs and a margin. Under the second type of contractual arrangement, the suppliers charge us for cumene according to contractually agreed formulas based on benzene and propylene market prices and agreed yield factors. A conversion fee is added to the charge. The third type of arrangement is the toll contract, discussed above, pursuant to which customers pay for or provide raw materials to us and receive, in exchange for a toll fee, corresponding phenol and acetone outputs in fixed proportions. Finally, we also make some incidental purchases of cumene in the open market. As a result of these arrangements, we are exposed to changes in the market contract and spot rates for benzene and propylene. We believe that our use of toll contracts with customers and formula-based contracts can reduce our exposure to raw material price fluctuations.

Customers and Contracts

INEOS Nitriles has approximately 180 customers worldwide, with the top 10 acrylonitrile customers accounting for approximately 73% of revenue. Major acrylonitrile customers include, in Asia, Chi Mei, LG, Lotte and Toray, and, in Europe, Styrolution, Aksa, Dralon and Kemira. We are the only acrylonitrile supplier to provide customers with the security of supply from capacity in the United States and in Europe and the only supplier to service all key regions of the world: United States, Europe and Asia (including the Indian subcontinent). Ammonia products are predominantly sold to on-site internal customers for the production of acrylonitrile (INEOS Nitriles) and nitric acid (Covestro), but also supplies to external customers for a wide range of applications.

INEOS Oligomers has approximately 300 worldwide customers with its top 10 customers accounting for approximately 44% of revenue. Major customers typically include large polyethylene and elastomer manufacturers, such as Dow, ExxonMobil, and Nova, SK and LG and leading lubricant, surfactant and drilling fluid companies.

INEOS Oxide sells most of its products to leading chemical manufacturers, including BASF, Bayer, Arlanxco, Covestro, Arkema, and Proctor & Gamble. The majority of our sales are made pursuant to short- and medium-term market contracts of one to five years in duration. Under a long-term swap agreement entered into with Dow Chemical as part of the ethanolamine and GasSpec™ gas treating amines acquisition in February 2001, we swap a significant proportion of our ethylene glycol production from our Antwerp facilities for an equivalent volume of ethylene oxide production from Dow Chemical's ethylene oxide plant in Plaquemine. We generally determine the prices for our chemicals on a monthly basis based on current market conditions, including raw material costs. Other than ethylene oxide prices, which are based on the European market price, our prices are generally based on the international market price.

INEOS Phenol sells to most of the major phenol and acetone consumers globally, including Bayer, Olin (previously Dow), Sabic, Fibrant (previously DSM), Evonik and Lucite. We generate approximately 68% of our total sales from our 10 largest customers with whom we have developed strong relationships over more than 50 years of doing business. Many of our sales contracts include provisions whereby raw material price changes are passed through automatically insulating our margins from volatile changes in raw material markets.

Research and Intellectual Property

The market position of our Chemical Intermediates business is supported by a range of technologies. Our main technology in this area is the proprietary fluid bed acrylonitrile process and related catalysts. We believe that this technology is the leading nitriles manufacturing technology and, we believe that it is used in a significant majority of the world acrylonitrile production.

INEOS also carries out research to improve the capital and operating costs of the different technology platforms, and catalyst and additive performance, including development of novel catalysts and additives. This work complements other research focused on applications and improvements to existing asset performance.

Active management of our intellectual property rights allows us to preserve the advantages of the products we sell and the technologies we use, and helps us to maximize the return on our investment in research and development. We police our proprietary rights and enforce them against third party infringements or misappropriations. We own approximately 2,200 patents or patent applications, divided into approximately 255 patent families, in the United States, Europe, China and various other commercially relevant regions. In addition, we own a number of registered trademarks. Strict control of our proprietary confidential technical

information provides valuable complementary protection to our other intellectual property rights. In addition to our own intellectual property, we are party to licensing and other agreements authorizing us to use and sub-license patents, trade secrets, confidential technical information and related technology owned by third parties.

While we believe that our portfolio of intellectual property rights provides significant competitive advantages, we do not regard our business as being materially dependent on any single patent, trademark, trade secret or agreement.

Competition

Although INEOS Nitriles competes with numerous manufacturers of acrylonitrile, we are the largest producer in the world. In addition, we believe that a significant majority of the world's acrylonitrile capacity is based on our process technology. Our most significant competitor is Asahi Kasei Corporation, closely followed by Sinopec. Other competitors include Ascend in North America and AnQore in Europe. In the global market for ammonia, we face over 150 competitive production units located in 50 countries. Thirty of these units are within Western Europe.

The main competitors for INEOS Oligomers in linear alpha olefins are Royal Dutch Shell, Chevron Phillips and Sasol Limited. For polyalphaolefins, major competitors include Chevron Phillips and Exxon Mobil.

The main competitors of INEOS Oxide in the ethylene glycol, antifreeze, ethylene oxide and ethylene oxide derivatives markets are BASF, Shell and Dow Chemical, while those in acetate esters include Celanese, BASF and Oxea. Our only competitor in the ethylidene norbornene monomer merchant market is JX Nippon Oil & Energy.

In Europe, the major competitors for INEOS Phenol are Cepsa, Novapex, Borealis and Versalis. In North America, our major competitors are AdvanSix, Shell and Sabic.

Refining Divestiture, Grangemouth Divestiture and Lavéra Divestiture

The Refining Divestiture

On July 1, 2011, subsidiaries of Lux I disposed of (i) the Refining Business and the Entrepreneurial (Refining) Business to joint ventures formed between PetroChina and INEOS Investments and (ii) the Infrastructure Entity to a joint venture owned by INEOS Investments (50.0%) and the Refining Business JV (50.0%), herein referred to as the "Refining Divestiture." The disposal of the Refining Business, the Entrepreneurial (Refining) Business and the Infrastructure Entity was principally a disposal of the Refining segment of the INEOS Group as reported on the financial statements of IGH.

The Refining Business and the Entrepreneurial (Refining) Business disposed of in connection with the Refining Divestiture consist principally of the crude oil refining operations carried out at the refineries located at Grangemouth, Scotland, and Lavéra, France, and related entrepreneurial activities. The Refining Divestiture also involved the transfer to the Infrastructure Entity of certain related infrastructure assets (principally a power station in Grangemouth, Scotland, and a terminal and other facilities). Following the Refining Divestiture, the INEOS Group and the Refining Business share certain assets and will continue to rely on each other for certain goods and services, which include the purchase of feedstock by the INEOS Group from the Refining Business JV, the sale by the INEOS Group of certain hydrocarbons to the Refining Business JV and the provision of certain administrative services to each other (such as security, emergency response, accounting, employee relations, procurement and site management). The Infrastructure Entity acquired the related infrastructure assets and provides certain infrastructure goods and services (such as power and access to terminals) to the INEOS Group and the Refining Business JV. The Infrastructure Entity was transferred by the INEOS Group as part of the Refining Divestiture and is jointly owned by INEOS Investments and the Refining Business JV. Upon the consummation of the Refining Divestiture, service and asset-sharing arrangements were executed to govern the ongoing use of the shared infrastructure and services. The indemnification provisions include the INEOS Group giving an uncapped non-time limited indemnity to the joint venture in respect of environmental liabilities not related to the Refining Business.

As a result of the Refining Divestiture and related transactions, on July 1, 2011, we received net cash proceeds (after expenses and agreed completion adjustments) equal to €658.0 million and 400 Ordinary Shares in INEOS Investments, subscribed for at an aggregate subscription price of \$1.015 billion. The ordinary shares

have the right to receive an amount equal to all amounts received by INEOS Investments (net of a good faith estimate of its audit, company secretarial and other administrative expenses, as determined by the directors of INEOS Investments) in respect of its investments, including its equity interest in the Refining and Entrepreneurial JVs and the Infrastructure Entity, and INEOS Investments shall be obliged to distribute to the INEOS Group, subject to applicable legal requirements, in the form of dividends or as a return of capital, all amounts received by it in respect of such investments, less such audit, company secretarial and other administrative expenses. The holders of the ordinary shares are entitled to, in priority to any payment to holders of any other class of shares, \$1.015 billion of the total capital returned to the voting shareholders. While we do not have voting control of INEOS Investments, the INEOS Group does retain the majority of the current economic benefits of the entity as we are entitled to receive the foregoing amounts through the ordinary shares we hold. By virtue of the Group's retained economic interest in INEOS Investments, the INEOS Group consolidates INEOS Investments as a subsidiary in its consolidated financial statements. The investments in the Refining Business held by INEOS Investments are therefore accounted for as investments in joint ventures in the consolidated financial statements of the INEOS Group. The ordinary shares are unsecured equity interests. Subject to applicable law, the ordinary shares do not carry voting rights other than class voting rights in relation to changes in the Articles of Association of INEOS Investments that would affect the rights of the ordinary shares, including the issuance of shares ranking *pari passu* or prior to the ordinary shares, or in relation to any proposal to wind-up INEOS Investments. Except with respect to the limited class voting rights of the ordinary shares, the voting shares of the principal shareholders of IGH have 100% of the voting rights of INEOS Investments.

The Grangemouth Divestiture

On October 1, 2013, the Group completed the Grangemouth Divestiture which comprised the disposal of its Grangemouth petrochemicals operations, including the assets and pension and other liabilities, to a newly created subsidiary of INEOS Holdings AG, our indirect parent company. The Grangemouth Divestiture was implemented pursuant to a restructuring designed to address concerns that the operations carried out by INEOS Commercial Services UK Limited and INEOS Chemicals Grangemouth Limited at the Grangemouth site had been loss-making for the previous four years, primarily due to a high fixed-costs base at the Grangemouth site and a decline in suitable feedstock supplies. Accordingly, a survival plan was implemented to improve its cost base and to enable it to invest in new infrastructure to import U.S. ethane to the Grangemouth site which will provide a low cost sustainable raw material supply for the business.

The plan formulated for the survival of the Grangemouth operations required a significant investment. This investment included investment in infrastructure necessary to allow the site to import ethane gas from the U.S., including the construction of an import facility and ethane tank. These facilities were completed during 2016 and the first shipment of ethane gas arrived from the U.S. into Grangemouth in September 2016. The investment was funded from the proceeds of the issue by INEOS Grangemouth plc in August 2014 of €285 million 0.75% Guaranteed Notes due 2019, which were guaranteed by the U.K. government's Infrastructure Guarantee Scheme. In July 2019, the €285 million of Guaranteed Notes were redeemed at maturity and replaced with a new €350 million bank facility for the Grangemouth divested business. The new facility has a three year term and comprises a €200 million term loan with a €150 million revolving credit facility. The €200 million affiliate loan between IHL and INEOS Grangemouth plc was cancelled at the time of executing the new refinancing. INEOS Grangemouth Plc has re-registered as INEOS Grangemouth Limited following the redemption of the Guaranteed Notes.

The Grangemouth Chemicals business has delivered stronger financial performance from 2014 to 2019 than was envisaged in the original business case for the survival plan. Acceleration of the site transformation plan, strong chemicals markets and improvements in the operations of the site have all contributed to higher cash generation and an improvement in the net debt position of the divested business compared to the original business case.

The Lavéra Divestiture

On July 1, 2014, our subsidiaries INEOS Group AG and INEOS Europe AG disposed of certain petrochemical assets and business in France and Italy to a subsidiary of INEOS AG, a company wholly owned by our ultimate parent INEOS Limited. The disposed businesses comprise a petrochemical business at the Lavéra site in France as well as certain other business and assets in France and Italy that were formerly part of our European Olefins & Polymers business unit (the disposed assets and business are together referred to as the "Lavéra businesses"). The total consideration for the sale of the Lavéra businesses amounted to €200 million

and was initially provided in the form of vendor loans. As of December 31, 2015, all of the consideration was received by us in cash.

The disposal was part of a restructuring plan for the Lavéra businesses with the objective of improving the reliability and cost base of the Lavéra site.

The acquiror of the Lavéra businesses is not part of the “Restricted Group” under our Senior Secured Term Loans Agreement and the Existing Indentures and as a result the Lavéra businesses are no longer subject to the covenants and other obligations under our Senior Secured Term Loans Agreement and the Existing Indentures. Further, the Lavéra businesses will not be part of the “Restricted Group” under the Indenture governing the Notes and will consequently not be subject to the covenants and the obligations contained therein.

We continue to provide certain supporting services such as supply chain management, accounting or logistical services to the Lavéra businesses following their disposal. Further, our subsidiary INEOS Europe AG entered into an offtake agreement for ethylene oxide with an entity that is part of the Lavéra business. These services and agreements with the Lavéra businesses are engaged in on an arm’s-length basis.

Contractual Arrangements with the Refining and Entrepreneurial JVs

To ensure that the companies in the INEOS Group retain access to the feedstocks provided by the Refining and Entrepreneurial JVs, we have entered into several contractual arrangements with the Refining Business JV and the Infrastructure Entity. Pursuant to these arrangements, the INEOS Group will retain access to the feedstocks that are essential to the retained business segments, thereby contributing to the long-term viability, security and profitability of our businesses.

Our Köln site within our Olefins & Polymers Europe business has entered into standard supply contracts buying naphtha with the Refining and Entrepreneurial JVs on an arm’s-length basis.

Contracts have been put in place to ensure that the companies in the INEOS Group retain access to the naphtha feedstock produced by the Refining Business JV at Grangemouth, following the separation of the Grangemouth petrochemicals business from the INEOS Group in the Grangemouth Divestiture. Historically, the majority of naphtha feedstock produced by the Grangemouth refinery was exported and delivered to other INEOS Group companies as chemical intermediate feedstock. To maintain the security of supply of naphtha feedstock from the Refining Business JV to the INEOS Group, INEOS Europe AG (“IEAG”), a member of the INEOS Group, entered into a long-term agreement with the Refining Business JV for the purchase of all of the refinery naphtha produced at Grangemouth. Pursuant to this arrangement, the INEOS Group retains access to the naphtha feedstock, which is a key part of the supply chain for the retained business segments, thereby contributing to the long-term viability, security and profitability of our businesses.

Contractual Arrangements with the Grangemouth petrochemicals business

To retain flexibility on polymer sales, and thus optimisation of value for the INEOS Group businesses, the polymer production at Grangemouth is sold to market through the INEOS Group Limited Risk Distributor companies (“LRDs”). The proceeds (less an agreed sales margin) of the sale of polymer production at Grangemouth through the LRD network are transferred back to INEOS Commercial Services UK Limited, one of the entities divested in the Grangemouth Divestiture.

Contractual Arrangements with the Lavéra, Sarralbe & Rosignano petrochemicals business

Historically, the majority of naphtha feedstock produced by the Lavéra refinery has been consumed by the petrochemicals business at Lavéra. Pursuant to the Lavéra Divestiture, contracts were executed in order to continue this arrangement.

To retain flexibility on polymer sales, and thus optimisation of value for the INEOS Group businesses, the polymer production at Lavéra, Sarralbe and Rosignano is sold to market through the INEOS Group LRDs. The proceeds of the sales through the LRD network sales are transferred back to INEOS Derivatives France Limited (“IDFL”) less an agreed sales margin.

Prior to the divestiture, all contracts for the purchase of ethylene and propylene for IDFL’s polymer plants in Sarralbe, Lavéra & Rosignano were with counterparties external to the INEOS Group and these supply arrangements remain in place following divestiture.

Research and Technologies (“R&T”)

We consider R&T to be a key contributor to both the short-term performance and the long-term growth of our business.

Our R&T work has four principal objectives:

- minimize production costs with a view to increasing the margins that can be achieved in the manufacture and sale of our products;
- make better products in order to sustain or capture more margin or market share;
- reduce capital costs to minimize the investments necessary to meet demand; and at the same time
- Improve the environmental footprint of our products and processes, for example greenhouse gas (GHG) emissions, and enhanced recyclability

A substantial portion of our R&T expenditure is dedicated to the continuous improvement of our existing processes, products, assets and operations and generally yields returns in less than two years, and reduces GHG emissions. This R&T work is carried out by a combination of integrated teams based at our facilities and centrally located specialists and research teams in one of our R&T centers. In addition, we carry out longer-term projects targeted at more fundamental improvements, which we typically intend to yield returns within two to five years, and make significant improvements in either the recyclability of our products or GHG emissions. We protect our process technologies and products by seeking patents or retaining them as trade secrets.

We believe that the quality of our scientific staff is important to our success. The employees working in our R&T centers have comprehensive expertise in a variety of areas, including catalysis, process development, product and material science, modeling and project management. Our R&T project teams also have commercial expertise. We consistently aim to improve the effectiveness of our R&T efforts by targeting our projects at the most valuable applications and using project management tools to monitor progress. To attract and retain the best-qualified scientists and develop a high level of capability and competence in the key areas of processes, products and operations, we offer our employees challenging development opportunities and a competitive compensation package that is aligned with performance of the relevant business in both the short and long term.

We also draw on external resources to enhance the scope, depth and effectiveness of our internal R&T efforts. We proactively seek mutually beneficial partnerships with third parties, including other petrochemical companies and leading universities.

Facilities

We currently lease the office space for our principal executive offices, which are located in Rolle, Switzerland. We also lease administrative, technical and sales office space in various locations in the countries in which we operate.

Our production network comprises 32 manufacturing facilities in six countries throughout the world. The following table provides information regarding these facilities:

Country	Location ⁽¹⁾	Business	Principal products manufactured	Capacity ⁽²⁾
Belgium.....	Doel ⁽³⁾	Phenol	Phenol, acetone	1,105 kta
	Feluy	Oligomers	Linear alpha olefins, poly alpha olefins	445 kta
	Geel	O&P Europe	Polypropylene	339 kta
	Lillo	O&P Europe	Polypropylene, high-density polyethylene	723 kta

Country	Location ⁽¹⁾	Business	Principal products manufactured	Capacity ⁽²⁾
	Zwijndrecht	Oxide	Ethylene oxide, ethylene glycol, ethylene oxide derivatives, ethylidene norbornene monomer, buthyl acetate, alkoxyates	1,481 kta
Canada	Joffre	Oligomers	Linear alpha olefins	292 kta
Germany	Gladbeck	Phenol	Phenol, acetone, alpha methyl styrene	1,105 kta
	Köln	Nitriles	Ammonia, nitric acid ⁽⁴⁾ , acrylonitrile and related products	1,646 kta
		O&P Europe	Ethylene, propylene, butadiene, benzene, low-density polyethylene, linear low-density polyethylene	3,131 kta
		Oligomers	Isoolefins, isoparaffins, specialties	150 kta
		Oxide	Ethylene oxide and derivatives, ethylene glycol, propylene oxide, propylene glycol	863 kta
	Marl ⁽⁵⁾	Phenol	Cumene	260kta
Norway	Bamble	O&P Europe	Low-density polyethylene	158 kta
	Rafnes	O&P Europe	Ethylene, propylene	699 kta
United Kingdom	Hull	Oxide	Ethyl acetate	330 kta
United States	Battleground ⁽⁷⁾	O&P North America	High density polyethylene, polypropylene	1,112 kta
	Carson	O&P North America	Polypropylene	231 kta
	Cedar Bayou ⁽⁶⁾	O&P North America	High density polyethylene	215 kta
	Chocolate Bayou	O&P North America	Ethylene, propylene, butadiene, polypropylene	2,799 kta
	Freeport	Oligomers	Linear alphaolefins	420kta
	Freeport	Oligomers	Gas treating amines	12 kta
	Green Lake	Nitriles	Acrylonitrile and related products	697 kta
	Hobbs	O&P North America	Ethane/propane mix, propane	1,455 kta
	La Porte	Oligomers	Poly alpha olefins (low and high viscosity)	105 kta

Country	Location ⁽¹⁾	Business	Principal products manufactured	Capacity ⁽²⁾
	Lima	Nitriles	Acrylonitrile and related products, acrylonitrile catalyst	232 kta
	Mobile	Phenol	Phenol, acetone	875 kta
	Pasadena	Phenol	Cumene	900 kta
	Plaquemine	Oxide	Ethanolamines	175 kta
	Mills	O&P North America	Polyethylene pipe	38 kta
	Bowie	O&P North America	Polyethylene pipe	53 kta
	Cedar City	O&P North America	Polyethylene pipe	41 kta
	Elizabethtown	O&P North America	Polyethylene pipe	36 kta
	Snyder	O&P North America	Polyethylene pipe	46 kta
	Rapid City	O&P North America	Polyethylene pipe	36 kta
	Statesbro	O&P North America	Polyethylene pipe	37kta
	Lubbock	O&P North America	Polyethylene pipe	44 kta

(1) We own all of the production facilities except where otherwise indicated.

(2) The unit kta is kilo-tonnes per annum.

(3) We own the production assets but lease the land under a long- term lease that expires in 2040.

(4) Nitric acid plant owned by third party, operated by INEOS.

(5) Plant owned by INEOS Styrenics GmbH, a related party.

(6) A 50/50 joint venture with Chevron Phillips, operated by Chevron Phillips. The capacities shown are the INEOS share of the activities.

(7) Battleground facility includes the Gemini HDPE LLC, a 50/50 JV with Sasol Ltd with 235 kta of capacity for each JV partner. INEOS share of capacity is shown.

Health, Safety, Security and Environment

Overview

Our facilities and operations are subject to a wide range of HSSE laws and regulations in all of the jurisdictions in which we operate. These requirements govern, among other things, the manufacture, storage, handling, treatment, transportation and disposal of hazardous substances and wastes, wastewater discharges, air emissions (including GHG emissions), noise emissions, operation and closure of landfills, human health and safety, process safety and risk management and the clean-up of contaminated sites. Many of our operations require permits and controls to monitor or prevent pollution. We have incurred, and will continue to incur, substantial ongoing capital and operating expenditures to ensure compliance with current and future HSSE laws, regulations and permits or the enforcement of such requirements. Our aggregate HSSE capital expenditures in 2019 totaled approximately €370 million. Our projected HSSE capital expenditures in 2020 are around €400 million. Annual HSSE capital expenditures for 2021-2022 are expected to be similar to prior years.

Violations of HSSE requirements may result in substantial fines or penalties, the imposition of other civil or criminal sanctions, cleanup costs, claims for personal injury, health or property damages, requirements to install additional pollution control equipment, or restrictions on, or the suspension of, our operating permits or activities. At certain sites where we operate, regulators have alleged, or we have otherwise identified potential or actual non-compliance with HSSE laws and/or the permits which authorize operations at these sites. Some of these allegations or instances of non-compliance are ongoing, and substantial amounts may need to be spent to attain and/or maintain compliance. In addition, we have in the past paid, and in the future may pay, penalties to resolve such matters. Our businesses and facilities have experienced, and in certain cases, are in the process of investigating or remediating, hazardous materials in the soil and groundwater at locations where we operate and/or adjacent properties and/or natural resources at public and private lands not owned by us. We are also in the process of investigating and remediating contamination at certain sites where our facilities disposed of hazardous wastes. In addition, HSSE laws and regulations can impose various financial responsibility requirements on us, and pursuant to these requirements we may be required to post bonds, create trust funds or provide other assurances that we will be able to address contamination at our sites and comply with our decommissioning obligations once our facilities reach the end of their useful lives.

Other HSSE laws and regulations may impose restrictions upon product or raw material use, import or sale by us or our customers. For example, it is possible that certain of our products or by-products or the raw materials we use may, in the future, be classified as hazardous or harmful, which could impact our production or demand for our products and, in turn, could materially and adversely affect our business and/or results of operations.

We believe that our operations are nonetheless currently in material compliance with all HSSE laws, regulations and permits. We actively address compliance issues in connection with our operations and properties and we believe that we have systems in place to ensure that environmental costs and liabilities will not have a material adverse impact on us. Nevertheless, estimates of future environmental costs and liabilities are inherently imprecise, and the imposition of unanticipated costs or obligations could have a material adverse effect on our business, financial condition or results of operations in any period in which those costs are incurred.

Major Regulatory Matters and Developments

Air and Climate Change Regulations and Initiatives

EU Emissions Trading System

Our operations in Europe are covered by the European Union Emissions Trading System (“EU ETS”), an EU-wide trading system for industrial GHG emissions. Industrial sites receive or purchase allowances to emit GHGs and must surrender one allowance for each ton of carbon dioxide emitted. Companies which emit less GHGs than their allowances cover are able to sell the excess allowances, whereas those which emit more must buy additional allowances through the EU ETS. The number of allowances to emit GHGs that are received by industrial facilities free of charge has been, and we expect will continue to be, reduced over time. Accordingly, in the future, we may be required to purchase more of the allowances we use, or to make emissions reductions at our facilities, which could cause us to incur additional compliance and/or capital costs and/or adversely impact our production and our results of operations.

EU Industrial Emissions Directive (IED)

Our operations are also required to comply with IED which regularly publish new decisions aiming at reducing emissions to air and water from all chemical sites. We actively participate in the process to discuss those regulations to defend our interests and better anticipate the need for capital expenditures which could be required in order to comply with these new rules.

U.S. Clean Air Act and Climate Change Regulations

In the United States, the federal Clean Air Act (“CAA”) regulates air emissions from various sources and requires, among other things, monitoring of specified pollutants, including hazardous air pollutants, stringent air emission limits and technological controls to reduce emissions to air. Strict federal and state controls on ozone, carbon monoxide, benzene, sulphur dioxide, nitrogen oxide and other emitted substances impact our activities and increase our operational costs in the United States.

Growing concern about the sources and impacts of global climate change has led to a number of legislative and administrative measures, both proposed and enacted, to monitor, regulate and limit carbon dioxide and other GHG emissions. For example, we are required to monitor and report to EPA annual GHG emissions from certain of our U.S. facilities. In addition, EPA has taken steps to regulate GHG emissions under the CAA and other existing legislation as comprehensive climate change legislation has not yet been enacted by the U.S. Congress. Under the Trump administration, uncertainty exists as to how GHG regulations will in the future impact large stationary sources, such as our facilities in the United States, and what costs or operational changes these regulations may require. For example, in August 2018, EPA proposed the Affordable Clean Energy (“ACE”) rule to replace the 2015 CPP. The CPP was stayed by the U.S. Supreme Court in 2016 and has never gone into effect. The ACE rule, which would establish emission guidelines for states to use in developing plans to address greenhouse gas emissions from existing coal-fired power plants, is open for public comment until the end of October 2018. The ACE rule has four major components: (i) a definition of the best system of emission reduction for greenhouse gas emissions from coal-fired power plants, (ii) a list of “candidate technologies” states can use to establish standards of performance, (iii) a new preliminary applicability test for determining a “major modification” triggering enhanced review standards, and (iv) new implementing regulations for emission guidelines under other provisions of the CAA. Although we believe it is likely that GHG emissions will continue to be regulated in the U.S. and other countries (in addition to the E.U.) in the future, we cannot yet predict the form any such additional regulation will take in the chemical industry itself in various jurisdictions (such as a cap-and-trade program, technology mandate, emissions tax or other regulatory mechanism) or, consequently, to estimate any costs that we may be required to incur, for example, to install emissions control equipment, purchase emission allowances or address other regulatory obligations. We continue to monitor the situation closely.

In addition, the EPA has finalized or proposed several rules relating to emissions reporting and emissions reductions. We monitor rules within our industrial sector and rules in other sectors that may set a precedent for ours. Significant capital expenditures could be required for emissions control equipment in order to comply with these new rules.

In the United States, stringent controls on nitrogen oxides (NOx) and hydrocarbon “Volatile Organic Compound” (VOC) emissions, and/or the need to purchase emissions credits for certain facilities, impact our operations and, indirectly, the cost of our products. Credit pricing is subject to general economic conditions. NOx and VOC credits are available and affordable in the markets where we have previously needed such credits, and have not been a deciding factor in growth. EPA has finalized rules that will require states to restrict or prohibit emissions that “significantly contribute” to non-attainment of, or interference with a state’s ability to maintain, the revised ozone standard in other “downwind” states. Both of these developments may require additional NOx and VOC reductions at our facilities over the next decade, and could cause us to incur additional compliance and/or capital costs and/or adversely impact our production and our results of operations.

The Registration, Evaluation, and Authorization of Chemicals (“REACH”) Regulation, the Classification, Labelling and Packaging (“CLP”) Regulation, the Toxic Substances Control Act and the Canadian Environmental Protection Act, 1999 (“CEPA”)

The EU regulates chemical products within the EU by imposing on all affected industries the responsibility for ensuring and demonstrating the safe manufacture, use and disposal of chemicals. REACH requires the registration of all chemicals manufactured and imported into the EU (either alone, in mixtures or in articles) with the European Chemicals Agency (“ECHA”). The regulation requires formal documentation of the

relevant data required for hazard assessments for each substance registered as well as development of risk assessments for their registered uses. Most uses of high hazard substances, such as carcinogens, will require authorization by the ECHA. We manufacture, process, or use a number of substances classified as substances of very high concern under REACH. Some of the intermediates and monomers manufactured within some of our businesses are classified as carcinogenic, mutagenic, or reprotoxic. REACH requires extensive toxicological data, documentation and risk assessments for many of our chemical products and raw materials. As a corollary to REACH, the EU has also adopted the CLP Regulation to harmonize the EU's system of classifying, labelling and packaging chemical substances with the United Nation's Globally Harmonized System. The regulation is expected to standardize communication of hazard information of chemicals and to promote regulatory efficiency. It introduces new classification criteria, hazard symbols and labeling phrases, while taking account of elements that are part of the current EU legislation.

In the United States and Canada, our products and raw materials are subject to environmental, health and industrial hygiene regulations, including TSCA and CEPA, requiring the registration and safety analysis of the substances contained in them. The U.S. Congress passed the Frank R Lautenberg Chemical Safety for the 21st Century Act in 2016. EPA is currently undergoing adoption of the amended TSCA regulations to comply with the new law requirements. The full impact of these amendments to TSCA remains uncertain, it is possible that they could trigger risk evaluations of certain of our products by EPA, which may lead to new or more stringent regulatory obligations and/or restrictions, up to and including prohibitions on manufacture and sale of certain products. On December 19, 2016, EPA published a list of ten chemical substances that are the subject of EPA's initial chemical risk evaluations, as required by TSCA. This list includes multiple chemicals we manufacture, including carbon tetrachloride and methylene chloride. Work on the risk evaluations has already begun, in following with the mandatory requirement for EPA to evaluate existing chemicals with clear and enforceable deadlines.

Such regulations could result in a key raw material, chemical, or other substance being classified or reclassified as having a toxicological or health-related impact on the environment, users of our products, or our employees. Such reclassification of one or more of our raw materials or products could affect its availability and marketability, result in a ban on its purchase or sale, or require us to incur increased costs to comply with additional notification, labelling, or handling requirements.

Risk Management—Prevention of Major Accidents and Process Safety

Risks are inherent in the chemical and petrochemical businesses, particularly risks associated with safety, health and the environment, and each of our facilities actively assesses and manages such risks as required by law. Within the European Union, an EU directive on the control of major accident hazards (the "Seveso III Directive"), regulates facilities that present a risk of accidents involving dangerous substances and imposes specific plans and procedures on them, particularly for the storage of such substances. The Directive, which replaced the previous Seveso II Directive on June 1, 2015, provides for control measures aimed at preventing and limiting the consequences of major accidents. All of our major production sites are in the top tier of regulation under the Directive due to the quantity of dangerous substances stored at them. As such, we must establish a major accident prevention policy, safety reporting system, safety management system and emergency plan compliant with the requirements of the Directive.

In the United States, our manufacturing facilities are subject to EPA's Risk Management Program ("RMP"), which requires facilities that produce, handle, process, distribute or store certain highly hazardous chemicals to develop a risk management plan and program in the event of an accidental release of such chemicals. RMP also requires facilities to assess potential impacts to off-site populations in the event of a credible worst-case release and to document the policies, procedures, equipment and work practices in place to mitigate identified risks. Similar risk management requirements are imposed upon our facilities under the Emergency Planning and Community Right-to-Know Act, which contains chemical emergency response planning, accident release and other reporting and notification requirements applicable to our U.S. manufacturing facilities. The EPA finalized the change to the RMP regulations in 2016 that become effective in September 2018 and some further changes were made in December 2019. While the change impacts some RMP covered sites, the changes are not significant enough to cause burden or increased costs to our facilities.

In addition, our U.S. facilities are subject to standards including the OSHA Process Safety Management ("PSM") standard, which requires development of a program to manage workplace risks associated with highly hazardous chemicals. To better manage risks and process safety we pursue certifications within OSHA's Voluntary Protection Program ("VPP"), and our Battleground (Houston), Chocolate Bayou and Addyston sites are certified to Star status, the highest level achievable. Star level means that the site has

successfully implemented a safety and health management system and achieved a combined injury and illness rate that is below the industry rate nationwide. In addition, our U.S. sites also report PSM incidents as required by API 754 as part of the database maintained by the American Fuel and Petrochemical Manufacturers association.

Programs employed to manage PSM risks include instrumentation and overpressure relief devices. ISA 84 is an international standard that addresses the application of safety-instrumented systems for process industries. Our pressure relief systems are reviewed and designed to relevant legal (OSHA, ASME, NFPA, PED, ISO), industry (API, DIERS), and internal standards. In addition, all of our businesses are aware that effective safety management is consciously required to address and deal with major accident and process safety risks. We promote personal leadership for the management of these risks and the Board of Directors for each business operates a “Letter of Assurance” process whereby each of the Operations Directors/Site Managers reviews compliance with local regulations and the effectiveness of the safety management system. They then formally inform their Executive Team and Chief Executive in writing about any issues about which they need to be concerned. This process is intended to provide assurance that all businesses are in compliance in all material respects with applicable health, safety and environmental laws in the countries in which they operate.

Environmental Remediation and Closure Liabilities

Many of our sites have an extended history of industrial chemical processing, storage and related activities, and sites with known or suspected contamination exist. We are currently, and from time to time have been or may be, required to investigate and remediate releases of hazardous materials or contamination at or migrating from certain of these sites, as well as properties we formerly owned, leased or operated. We could also be responsible for investigating and cleaning up contamination at off-site locations where our predecessors or we disposed of or arranged for the disposal or treatment of hazardous wastes. Under some environmental laws, liability can be imposed regardless of whether the owner or operator knew of or caused the contamination and regardless of whether the practices that resulted in the contamination were legal at the time they occurred. In connection with contaminated properties, as well as our operations generally, we also could be subject to claims by government authorities, individuals and other third parties seeking damages for alleged personal injury or property damage resulting from hazardous substance contamination or exposure caused by our operations, facilities or products.

Baseline surveys of soil and groundwater conditions were conducted at many of our sites in the EU in connection with obtaining our Integrated Pollution Prevention and Control (“IPPC”) permits, and such data was reported to the relevant authorities. In addition, many of our other sites were the subject of intrusive investigations when they were acquired by us or in connection with historical activities or operational changes over the years. The process of investigation and remediation can be lengthy, varies from site to site and is subject to changing legal requirements and developing technologies. We are not currently aware of any additional sites as to which material claims or clean-up obligations exist. The discovery of previously unknown contamination, however, or the imposition of new obligations to investigate or remediate contamination at our facilities, could result in substantial unanticipated costs. We could be required to establish or substantially increase financial reserves for such obligations or liabilities and, if we fail to accurately predict the amount or timing of such costs, the related impact on our business, financial condition or results of operations in any period in which those costs need to be incurred could be material.

Product Stewardship and Innovation

Many of our products have some hazardous properties, and some of them require specialized handling procedures due to their acute and chronic toxicity. Our polymer products have widespread end uses in a variety of tightly regulated consumer industries, including in food packaging and medical applications. To manage these risks, our product stewardship team works closely with industry associations, government regulators and others to develop regulations, which are based in science and are commensurate with the magnitude of the risk.

Security and Crisis Management

The U.S. Department of Homeland Security (“DHS”) requires compliance by our facilities as defined in the Marine Transportation Security Act (“MTSA”), the Chemical Facilities Anti-Terrorism Standards (CFATS) and U.S. Department of Transportation Hazardous Materials regulations.

The DHS, the U.S. Federal Emergency Management Administration and individual state emergency management regulators require that all sites hosting emergency response teams train responders. It is required

that the emergency response teams and incident management teams have the knowledge, skills and equipment to allow them to work in concert with local, state, and Federal agencies in a framework defined by the National Incident Management System (“NIMS”). NIMS or equivalent training is conducted at sites to meet the intent of NIMS requirements. This allows the site responders to join with the governmental group in cases of widespread emergencies, including pandemics, where multiple agencies and organizations are involved.

HSSE Principles

We remain very strongly committed to excellent HSSE performance and believe we are a top decile performer within the chemicals industry. In 2013, INEOS converted its safety performance monitoring to mirror the U.S. OSHA standard. This enabled a common platform for comparisons and increased the number and types of injury data collected and analyzed. INEOS’s OSHA rate for the total workforce in 2019 was 0.16 injuries per 200,000 hours. We strive to operate throughout the world with a commitment to doing what is needed to protect the environment and to comply with all applicable regulations in the countries in which we operate. Our focus is on prevention of process safety incidents and we have developed internal audit programs (20 HSSE principles) designed to monitor and correct any deviations from acceptable performance.

Our aim is to avoid injuries to the community, employees and contractors. We focus on reducing major plant losses of containment of chemicals with health and safety impact. Core to our HSSE standards is our HSSE policy, which promotes executive management and individual responsibility, adherence to operating procedures and training and requires our sites to be designed, operated and managed with the goal of preventing major incidents.

Employees

As of December 31, 2019, we had approximately 7,500 employees (measured as full-time equivalents (“FTEs”)) in our operations around the world, excluding employees of our joint ventures. Approximately 65% of these employees were located in Europe, approximately 34% were located in North America and 1% was located in the rest of the world.

Historically, we have enjoyed good labour relations and we are committed to maintaining these relationships. Other than management and professional personnel, the majority of our employees are represented by local trade unions and are covered by collective bargaining agreements, including a European Employee Forum agreement under the European Council 94/45/EC, Article 6, which covers all businesses and employees across Europe within INEOS Group and is designed to provide a formal mechanism for management and employee representatives to communicate on significant or potentially significant issues across the INEOS Group’s European operations.

Insurance

INEOS purchase insurance on an All Risk Basis including business interruption (including consequential loss) and property damage on a replacement cost basis. In addition, we purchase third party liability insurance, directors & officers, marine cargo, protection & indemnity insurance, life insurance for all of our employees. We believe our policies are in accordance with customary industry practices, including deductibles and coverage amounts. Our broker, lead insurers and underwriters perform risk engineering surveys and routinely inspect all assets. We have an ongoing programme to regularly revalue our assets. The insurance replacement value of our assets is approximately €25.7 billion as of December 31, 2019.

Legal proceedings

As is the case with many companies in the chemical industry, we are and may from time to time become a party to claims and lawsuits incidental to the ordinary course of our business. We are not currently involved in any legal or arbitration proceedings that are expected to have a material adverse effect on our financial position and, to our knowledge, no such legal or arbitration proceedings are currently threatened.

Agreements with BP

We have ongoing relationships with BP under several trading agreements as summarized below.

Reorganization Agreements

In connection with the separation of certain businesses that INEOS acquired from BP in December 2005, there are certain reorganization arrangements in place with BP. The principal arrangement relates to access to the RMR Pipeline. A significant portion of the annual naphtha supply required by the petrochemical cracker at our Köln, Germany site is transported through the RMR pipeline. BP is entitled to a certain amount of RMR pipeline capacity every year, consistent with its overall 35% interest in the pipeline. We have an arrangement with BP pursuant to which we have a right to use a portion of this capacity, along with associated infrastructure at BPRR (“BP Rotterdam Refinery”), The Netherlands, to enable us to meet an agreed amount of the naphtha requirements of our Köln site. This agreement has an indefinite term.

Commercial Interface Agreements

We have a series of agreements with BP which cover, among other things:

- the sale and purchase of hydrocarbons at or between sites where INEOS and BP have a continuing relationship; and
- the provision by INEOS to BP and vice versa of services, utilities and infrastructure rights at certain INEOS sites (both standalone and shared) and in some cases between INEOS’ respective sites; although
- with the purchase of the Forties Pipeline System during 2017 by a related party of INEOS Group the majority of these arrangements between BP and INEOS have come to an end.

Related Agreements

In connection with our relationship with BP, we and BP (among others) entered into agreements providing for (i) reciprocal credit support, (ii) the netting of each party’s reciprocal obligations and (iii) security assignments as guarantees for our payment obligations owed to BP.

These agreements were terminated on January 5, 2017 and were replaced by a new credit support agreement pursuant to which (i) any party to any existing underlying trading agreement between IHL and BP (and/or certain of their respective affiliates) and (ii) any party to certain agreements for the sale and purchase of Ethylene and Propylene proposed to be entered into between BP Europa SE and INEOS Europe AG, may require the provision of additional credit support if the existing credit support provided under that trading agreement is no longer satisfactory (the “Credit Support Deed”). See “Risk Factors—Credit Support Deed—The credit support we may be required to provide under our Credit Support Deed with BP may be substantial.”

In connection with the new credit support agreement IGH has provided a parent company guarantee in favour of BP and certain of its affiliates, pursuant to which IGH guarantees the payment obligations of various members of the Group under trading agreements between such parties.

Sustainability

Ensuring the sustainability of our business and operations is central to the way INEOS works. It is of critical importance to all our stakeholders, to our employees, the communities in which we work, and our investors. It is and always has been a significant differentiator in the competitive landscape, and it drives innovation across all our businesses and sites.

We believe that our products already make a valuable contribution to society by providing more sustainable options for a wide range of societal needs. For example, our intermediates and polymers are used to provide materials for the protection and preservation of food and water; construction of wind turbines, solar panels and other renewable technologies; for construction of lighter and more fuel-efficient vehicles and aircraft; for medical devices and applications; for clothing and apparel; and for insulation and other industrial and home applications. It has been reported that if polymers and plastics were to be replaced to the maximum extent in all applications, greenhouse gas (GHG) emissions would increase by over a factor of 2.

Looking forward, we believe that we can play a strong role in continuing to provide solutions to tackle global challenges – be it climate change, resource scarcity, urbanisation or marine litter. We have identified five actions that we are taking as INEOS to make a meaningful and measurable difference in both the shorter and longer term, as follows:

1. *Delivering The Circular Economy*

We have set clear targets for 2025:

- Offer a range of polyolefin products for packaging applications in Europe containing 50% or more recycled content.
- Use, on average, 30% recycled content in products destined for polystyrene packaging in Europe.
- Incorporate at least 325kt/a of recycled material into products.
- Ensure 100% of polymer products can be recycled.

In line with these objectives, and working with our customers, we have designed and launched a new range of Recycl-IN polyolefin products which incorporate up to 50% of post-consumer recycled polymer in materials that meet the same exacting specifications as virgin material. We are also investing in advanced recycling technologies that will enable waste polymers to be broken down to their constituent components then reformed back into polymers. This will enable a much wider range of waste materials to be re-incorporated into polymer manufacture. This move towards a circular economy will increase resource efficiency, reduce GHG emissions, and provide an improved outlet for waste polymers.

2. *Improving energy efficiency in existing operations*

We are working aggressively across all our business and sites to make important reductions in energy use and associated GHG emissions.

3. *Investing in new manufacturing assets.*

The hallmark of a sustainable business is the ability to invest in new state of the art manufacturing assets to create a step change improvement in efficiency and environmental footprint. For example, we are constructing a new cracker complex in the port of Antwerp which, when commissioned, will create approximately a 50% reduction in GHG emissions associated with the production of the olefin intermediates used to manufacture polymers and other high value products. This is the first investment at this scale in Europe for over 25 years and will bring a new benchmark to the European industry.

4. *Using renewable bio-sourced feedstocks*

We have announced that we are developing certified bio-attributed olefins and polymers. If successfully developed at scale, these products could provide as much as 100% GHG savings when compared with conventional materials.

5. *Developing alternative low emission energy sources*

We are exploring the use of alternative low emission sources of energy to power our activities. Amongst these, we are looking at the feasibility of making hydrogen from gas in conjunction with carbon capture technology to provide very low emission energy to our sites, and to help develop hydrogen economies in the regions in which we operate.

We believe that this package of actions will bring substantial benefits to our customers, to the communities in which we operate, and to all our stakeholders, and help ensure that our businesses remain competitive and sustainable in the light of evolving customer, consumer, and societal needs.

MANAGEMENT

Executive officers and directors of INEOS Limited

INEOS Limited, a company incorporated in the Isle of Man, is our ultimate parent undertaking. INEOS Limited was incorporated on March 24, 2016 and became the ultimate parent undertaking on December 1, 2016.

The following table sets forth the name, age (as of December 31, 2019) and principal position of each of our directors and officers:

<u>Name</u>	<u>Age</u>	<u>Position</u>
James A. Ratcliffe	67	Chairman
Andrew Currie	64	Member of the Board
John Reece	62	Member of the Board
Jim Dawson	75	Non-Executive Director of INEOS Capital

James A. Ratcliffe has been the Chairman of INEOS Capital since 1998. Mr. Ratcliffe, who has over 30 years of experience in the chemical industry, is experienced in managing buyouts of chemical companies. In 1992, he led the successful buyout of Inspec Group plc. In 1998, he left Inspec to lead the acquisition of INEOS plc (now INEOS Oxide) from Inspec. Mr. Ratcliffe started his career with Exxon Chemicals before moving to Courtaulds. He then completed his MBA at London Business School before joining Advent International and then Inspec.

Andrew Currie has been a director of INEOS Capital since 1999. He was previously Managing Director, Laporte Performance Chemicals, having served as a director of the Inspec Group from 1994 until the Laporte acquisition of Inspec in 1998. Mr. Currie has a degree in natural sciences from Cambridge University and spent the first 15 years of his career with BP Chemicals in various technical and business management functions.

John Reece joined INEOS Capital as Finance Director in January 2000. He was previously a partner with PricewaterhouseCoopers, where he advised companies in the chemical industry. Mr. Reece has a degree in economics from Cambridge University and is a Chartered Accountant.

Jim Dawson became a non-executive director of INEOS Capital Limited in 2005. Dr. Dawson has been serving as a consultant to INEOS since 2001. Dr. Dawson served as a director of Shell International Chemicals until 2000. Dr. Dawson has a first degree in chemistry and a doctorate of philosophy from Oxford University.

INEOS AG, a subsidiary of INEOS Limited, provides operational management services to us.

All of the members of the board of directors and officers of INEOS Limited have their business address at Fort Anne, Douglas, IM1 5PD, Isle of Man.

Executive Officers and Directors of INEOS Group S.A.

INEOS Group S.A. is an indirect wholly owned subsidiary of INEOS AG. The directors of INEOS Group S.A. are Peter Huyck, Florence Bardot and Natalina Arena. The business address of Mr. Huyck is Nieuwe Weg 1, Haven 1053, 2070 Zwijndrecht, Belgium. The business address for Ms. Bardot is 3, Avenue des Uttins, CH 1180 Rolle, Switzerland. The business address of Ms. Arena is 310, Ransbeekstraat, B 1120 Bruxelles, Belgium. The principal executive offices of INEOS Group S.A. are located at: 58 rue Charles Martel L 2134, Luxembourg, Grand Duchy of Luxembourg.

Compensation of Directors and Executive Officers

An aggregate of €1.6 million was paid to our executive officers and directors in their capacity as directors and officers of INEOS Group Holdings S.A. in 2019.

Board Practices

Our board meets on a regular basis to review performance and our business plans. In addition, the board has established policies for the conduct of our business, including delegations of board authority to

directors and members of senior management. The board has appointed committees to ensure appropriate oversight of our companies' operations. None of the members of the board of directors has a service contract that provides for benefits upon his termination as a director.

The audit committee meets at least twice a year. The committee is responsible for appointing auditors and reviewing the suitability and effectiveness of internal control systems and the application of corporate policies.

The remuneration committee meets at least once a year. The primary function of the remuneration committee is to determine remuneration and other terms of employment for the directors and senior employees of the company, having due regard for performance. We anticipate that, in setting the remuneration policy, the committee will consider a number of factors, including the salaries and benefits available to senior management in comparable companies and the need to ensure senior management commitment to the continued success of the business by means of incentive schemes.

PRINCIPAL SHAREHOLDERS

As at December 31, 2019, all of the issued share capital of INEOS Group Holdings S.A. was held directly by INEOS Holdings Luxembourg S.A. The issued voting share capital of INEOS Holdings Luxembourg S.A. is held by INEOS Holdings AG. The remaining non-voting issued share capital is held by Eстера Trust (Jersey) Limited, as trustee of the INEOS Group Share Benefit Trust. INEOS Holdings AG exercises a controlling interest over INEOS Holdings Luxembourg S.A. through its majority interest in the voting share capital. The issued share capital of INEOS Holdings AG is held by INEOS AG. Of the issued share capital of INEOS AG, 94.9% is held by INEOS Limited and 5.1% directly by James Ratcliffe, Andrew Currie and John Reece. INEOS Limited became the ultimate parent undertaking of the Group on December 1, 2016. See also “Management” and “Certain Relationships and Related Party Transactions.”

The following table sets forth information regarding the ownership of INEOS Limited’s share capital, as of December 31, 2019, by the following:

- each person or group known by us to be the owner of 5% or more of the share capital of INEOS Limited; and
- all directors of INEOS Limited.

	Number of Ordinary Shares	Percentage of Total INEOS Limited Share Capital
James Ratcliffe	2,295,391,680	61.804%
Andrew Currie	711,501,880	19.157%
John Reece	707,106,440	19.039%
TOTAL	3,714,000,000	100.00%

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Relationship with INEOS Limited and INEOS AG

Ineos Limited and Ineos AG, a subsidiary of Ineos Limited, provide operational management services to the Group through a management services agreement. Management fees of €88.0 million (2018: €85.7 million, 2017: €81.6 million) were charged to the income statement. As at December 31, 2019 amounts owed were €23.1 million (2018: €22.0 million, 2017: €21.1 million). Amounts owed to Ineos Holdings AG, a wholly owned subsidiary of Ineos AG, were €0.9 million (amounts due from Ineos Holdings AG, 2018: €0.4 million, 2017: €148.8 million).

In March 2019 the Group received €260.5 million (\$296.5 million) of proceeds in relation to the repayment of the Group's preferential interest in INEOS Investments Partnership following the sale by INEOS Investments Partnership of its assets (shares in PQ Corporation) to INEOS Limited. The Group paid the proceeds received as part of a dividend of €296.3 million to its parent company, INEOS Holdings Luxembourg S.A..

Relationship with other INEOS subsidiaries

Ineos Limited owns and controls a number of operating subsidiaries that are not included in the Ineos Group Holdings S.A. group, including INOVYN Limited, Ineos Industries Limited (which from September 1, 2017 includes the Grangemouth petrochemical subsidiaries), INEOS Enterprises Holdings Limited and the Lavéra petrochemical assets and businesses together with other French and Italian assets of INEOS O&P South.

During the year ended December 31, 2019 the Group has made sales to these subsidiaries of €977.4 million (2018: €1,182.6 million, 2017: €987.1 million), recovered costs of €68.1 million (2018: €107.5 million, 2017: €135.1 million) and made purchases of €1,299.9 million (2018: €1,469.7 million, 2017: €1,624.9 million). As at December 31, 2019, €443.3 million (2018: €430.9 million, 2017: €393.8 million) was owed by and €151.9 million (2018: €111.0 million, 2017: €164.5 million) was owed to these subsidiaries (excluding the Grangemouth shareholder loan, the INEOS Upstream Limited loan and transactions and balances with Styrolution).

During 2015 the Group provided a loan of \$623.7 million to INEOS Upstream Limited, a related party, in connection with its acquisition of natural gas assets in the North Sea. The loan facility is unsecured and matures on October 26, 2020 and bears interest at 7% per annum. On September 29, 2017, INEOS Upstream Limited, a related party, acquired further natural gas assets in the North Sea through its acquisition of the entire oil and gas business of DONG Energy A/S. In connection with the DONG Acquisition, the Group advanced a loan of \$376.2 million (€315.7 million) to INEOS Upstream Limited, the proceeds of which were on lent to certain of its subsidiaries. The loan is unsecured and matures in June 2022 and bears interest at 7% per annum. During 2018 net loan repayments of \$122.5 million (€105.4 million) were received (2017: net loan repayments of \$142.7 million (€121.4 million)). As at December 31, 2019 \$617.1 million (€550.8 million) (2018: \$617.1 million (€539.7 million), 2017: \$739.6 million (€619.5 million)) was outstanding under the facility.

Following the divestment of the Grangemouth petrochemical business in 2013 the Group put in place a €200 million shareholder loan facility to fund the ongoing operations and investments required at the site. During the year ended December 31, 2017 INEOS Grangemouth plc repaid the Group €127.0 million in full repayment (including accrued interest) of the shareholder loan facility. In July 2019 INEOS Grangemouth plc entered in to a new €350.0 million Senior Term Loan and Revolving Credit facility and the shareholder loan facility was cancelled in full.

During 2019 the Group entered into a number of derivative contracts with INEOS UK SNS Limited and INEOS Energy Trading Limited, both related parties. The net fair value loss on these derivatives during the year ended December 31, 2019 was €80.3 million. As at December 31, 2019, the mark to market derivative asset was €15.3 million and the mark to market liability was €54.5 million in respect of these related party derivative financial instruments.

Relationship with Styrolution

Styrolution was previously a 50-50 joint venture between Ineos Industries Limited, a related party, and BASF. On November 17, 2014 Ineos Industries Limited completed the acquisition of BASF's 50% share in Styrolution for a purchase price of €1.1 billion. During 2016 Styrolution refinanced its capital structure and the Group invested €250 million in Styrolution Term Loan debt which was issued during September 2016. During the year ended December 31, 2017 Styrolution paid €7.7 million of interest relating to the Term Loan debt. In October 2017 the Term Loan was fully repaid to the Group. During the year ended December 31, 2019 the Group has made sales to Styrolution of €338.7 million (2018: €346.3 million, 2017: €420.1 million), recovered costs of €9.8 million (2018: €7.5 million, 2017: €8.0 million) and made purchases of €15.3 million (2018: €19.4 million, 2017: €7.9 million). As at December 31, 2019, €27.8 million (2018: €34.1 million, 2017: €45.9 million) was owed by Styrolution and €2.1 million (2018: €4.1 million, 2017: €3.5 million) was owed to Styrolution.

Relationship with the Entrepreneurial (Refining) Business JV and the Refining Business JV

The Refining joint ventures are between PetroChina and INEOS Investments (Jersey) Limited, a related party. INEOS Investments, whose shareholders are the principal shareholders of IGH, holds a 49.9%, a 50.1% and a 50.0% direct interest in the Entrepreneurial (Refining) Business JV, the Refining Business JV and the Infrastructure Entity, respectively. INEOS Investments holds a 25.05% indirect interest in the Infrastructure Entity by virtue of its 50.1% stake in the Refining Business JV.

During the year ended December 31, 2019 the Group made sales to the Refining joint ventures of €nil (2018: €0.6 million, 2017: €nil), recovered costs of €8.6 million (2018: €5.4 million, 2017: €24.5 million) and made purchases of €221.4 million (2018: €379.3 million, 2017: €164.1 million). As at December 31, 2019, €0.8 million (2018: €1.4 million, 2017: €0.6 million) was owed by the Refining joint ventures and €25.5 million (2018: €21.2 million, 2017: €14.9 million) was owed to the Refining joint ventures.

Relationship with other joint ventures

Ineos Limited owns interests in a number of joint ventures that are not included in the Ineos Group Holdings S.A. group, including the French joint ventures associated with the Lavera petrochemical assets and a joint venture with Sasol Limited to build and operate a HDPE plant at Battleground site in Texas, USA which became operational at the end of 2017.

During the year ended December 31, 2019 the Group made sales of €0.1 million (2018: €0.1 million, 2017: €0.1 million), recovered costs of €0.5 million (2018: € nil, 2017: €0.2 million) and made purchases of €0.2 million (2018: € nil, 2017: € nil) from the French joint ventures. As at December 31, 2019 €0.3 million (2018: €0.1 million, 2017: €0.1 million) was owed by the French joint ventures and €0.2 million (2018: € nil, 2017: € nil) was owed to the French joint ventures.

During the year ended December 31, 2019 the Group made sales to the HDPE joint venture of €nil (2018: €5.6 million, 2017: €nil), recovered costs of €59.1 million (2018: €58.4 million, 2017: €0.1 million) and made purchases of €47.9 million from the HDPE joint venture. As at December 31, 2019, €5.6 million was owed by and €5.1 million was owed to (2018: €0.5 million was owed to, 2017: €2.5 million was owed by) the HDPE joint venture.

DESCRIPTION OF CERTAIN INDEBTEDNESS

The following summary of certain provisions of the documents listed below governing certain of our indebtedness does not purport to be complete and is subject to, and qualified in its entirety by reference to, the underlying documents.

Senior Secured Term Loans

Overview

The Group has outstanding term loans (the “**Senior Secured Term Loans**” or “**Term Loans**”) under a credit agreement dated as of April 27, 2012 (as amended and restated) among INEOS US Finance LLC and INEOS Finance plc as borrowers, each of the guarantors named therein, the lender parties thereto and Barclays Bank PLC as administrative agent and security agent. The Senior Secured Term Loans are denominated in both Euros and U.S. dollars with tranches maturing in 2024. The credit agreement was last amended and restated as of November 3, 2017. The form of the credit agreement in effect at any time is herein called the “**Senior Secured Term Loans Agreement**.”

The aggregate principal amount of Senior Secured Term Loans outstanding at December 31, 2019 before issue costs were €3,470.9 million (2018: €3,476.7 million, 2017: €3,450.5 million) of which €35.4 million (2018: €35.1 million, 2017: €34.5 million) is due within one year. As of December 31, 2019, the Senior Secured Term Loans consisted of New euro-denominated Term Loans due 2024 in an aggregate principal amount outstanding of €2,018.8 million and New dollar-denominated Term Loans due 2024 in an aggregate principal amount outstanding of €1,452.1 million.

On February 28, 2017, the Company amended and restated the Senior Secured Term Loans Agreement and in connection therewith (a) prepaid all the outstanding Term Loans due 2018, (b) borrowed \$1,450 million of new term loans due March 31, 2022 (the “**dollar-denominated Term Loans due 2022**”) and €1,725 million of new term loans due March 31, 2022 (the “**euro-denominated Term Loans due 2022**”) and, together with the dollar-denominated Term Loans due 2022, the “**Term Loans due 2022**”) and in connection therewith prepaid or converted to Term Loans due 2022 all the Term Loans due 2020 and Original Term Loans due 2022, and (c) borrowed \$555 million of term loans due March 31, 2024 (the “**dollar-denominated Term Loans due 2024**”) and €875 million of term loans due March 31, 2024 (the “**euro-denominated Term Loans due 2024**”) and, together with the dollar-denominated Term Loans due 2024, the “**original Term Loans due 2024**”).

On November 3, 2017, the Company amended and restated the Senior Secured Term Loans Agreement and in connection therewith (a) prepaid, with the proceeds of the 2025 Senior Secured Notes and approximately €250 million of cash on hand, the Term Loans due 2022 and original Term Loans due 2024 in an aggregate amount of approximately €750 million and (b) refinanced all the remaining Term Loans due 2022 and original Term Loans due 2024 with the proceeds of new tranches of dollar-denominated Term Loans (the “**New dollar-denominated Term Loans due 2024**”) and euro-denominated New Term Loans due March 31, 2024 (the “**New euro-denominated Term Loans due 2024**”) and, together with the New dollar-denominated Term Loans due 2024, the “**New Term Loans due 2024**”) in approximately the same aggregate principal amount (in a combination of U.S. dollars and euro).

For additional information about the Senior Secured Term Loans, please see note 19 “Interest Bearing Loans and Borrowings”¹ to the financial statements of the Group as of and for the year ended December 31, 2019 included elsewhere in this annual report.

Interest and Fees

As of December 31, 2019, the New dollar-denominated Term Loans due 2024 bore interest at a rate determined by reference to LIBOR divided by a percentage equal to 100% minus the LIBOR Reserve Percentage (as defined in the Senior Secured Term Loans Agreement) (subject to a floor of 0.00% per annum) plus the Applicable Margin specified below for such loans or the Alternate Base Rate plus the Applicable Margin specified below for such loans. As of December 31, 2019, the New euro-denominated Term Loans due 2024 bore interest at a rate determined by reference to LIBOR divided by a percentage equal to 100% minus the

LIBOR Reserve Percentage (subject to a floor of 0.50% per annum) plus the Applicable Margin specified below for such loans. Term Loans bearing interest at a rate determined by reference to LIBOR are herein called “**LIBOR Loans**” and Term Loans bearing interest at the rate determined by reference to the Alternate Base Rate are herein called “**ABR Loans**”.

The Alternate Base Rate is a rate per annum determined as the highest of (a) the rate of interest quoted on such day in the print edition of *The Wall Street Journal*, Money Rates Section as the “prime rate”, (b) the Federal Funds rate plus 0.50% and (c) LIBOR for an interest period of one month (giving effect to the applicable LIBOR floor) plus 1.00%.

As of December 31, 2019, the Applicable Margins for the New Term Loans due 2024 were:

- in the case of the New dollar-denominated Term Loans due 2024 that are ABR Loans, 1.00% per annum, and in the case of the New dollar-denominated Term Loans due 2024 that are LIBOR Loans, 2.00% per annum;
- in the case of the New euro-denominated Term Loans due 2024, 2.00% per annum.

All of the New dollar-denominated Term Loans due 2024 were LIBOR Loans as of December 31, 2019.

Overdue amounts owing under the Senior Secured Term Loans Agreement bear interest (a) in the case of overdue principal, at the interest rate that would otherwise be applicable plus 2% per annum and (b) in the case of other overdue amounts, at the interest rate that would apply to the New dollar-denominated Term Loans that bear interest at a rate determined by reference to Alternate Base Rate plus 2% per annum.

Under the Senior Secured Term Loans Agreement, the administrative agent and the Borrower are required to endeavor to establish an alternate rate of interest to LIBOR in certain circumstances such as when the administrative agent determines that LIBOR is not available or if the supervisor for the administrator of LIBOR or a governmental authority having jurisdiction over the administrative agent publicly announces a specific date after which LIBOR shall no longer be used for determining interest rates for loans denominated in the applicable currency.

Security and Guarantees

The Senior Secured Term Loans share the same security package as the Senior Secured Notes, the Schuldschein Loan, certain hedging liabilities and certain cash management liabilities.

The obligations under the Senior Secured Term Loans are jointly and severally guaranteed on a senior basis by IGH and the Guarantors under the Senior Secured Term Loans Agreement (the “**Senior Secured Term Loans Guarantors**”). The obligations under the Senior Secured Term Loans are secured by the same collateral securing the Schuldschein Loan and Senior Secured Notes, including, subject to certain exceptions, substantially all of the assets of IGH and the Senior Secured Term Loans Guarantors. Such security includes first priority security interests over the collateral that secures the 2024 IGH Notes on a second priority basis (*i.e.*, the IHL Pledged Shares and the 2024 IGH Notes Proceeds Loans).

No later than 150 days after the end of each financial year, commencing with the financial year ended on December 31, 2017 (or such longer period as the administrative agent may agree to), (i) the Consolidated EBITDA (as defined in the Senior Secured Term Loans Agreement) of the Senior Secured Term Loans Guarantors must exceed 85% of the Consolidated EBITDA of the Financial Group (defined in the Senior Secured Term Loans Agreement as IGH, Lux I and the Restricted Subsidiaries (as defined in the Senior Secured Term Loans Agreement) of Lux I) and (ii) the total assets of the Senior Secured Term Loans Guarantors must exceed 85% of the consolidated total assets of the Financial Group, in each case subject to certain exceptions.

Covenants

Subject to certain agreed exceptions, the Senior Secured Term Loans Agreement contains negative covenants similar to the negative covenants applicable to the Senior Secured Notes and the Schuldschein Loan Agreement, including covenants restricting the ability of Lux I, the Borrowers and the other restricted subsidiaries of Lux I to:

- incur or guarantee additional indebtedness and issue certain preferred stock;

- layer debt;
- make restricted payments, including dividends or other distributions;
- prepay or redeem subordinated debt or equity;
- make certain investments;
- create or incur certain liens;
- transfer, lease or sell certain assets;
- enter into arrangements that impose restrictions on the ability of Restricted Subsidiaries (as defined in the Senior Secured Term Loans Agreement) to pay dividends or make other payments to Lux I;
- engage in certain transactions with affiliates;
- designate Unrestricted Subsidiaries (as defined in the Senior Secured Term Loans Agreement);
- consolidate, merge or transfer all or substantially all assets; and
- impair the security interests for the benefit of the Term Loan lenders.

IGH, Lux I and the Borrowers are also subject to more stringent restrictions upon their activities (for example, in relation to the ownership of assets and the liabilities that they may incur).

The Senior Secured Term Loans Agreement also contains customary affirmative covenants, including covenants relating to:

- the provision of financial statements and certain other information and notices;
- inspections;
- maintenance of certain insurance;
- payment of taxes;
- preservation of existence and consolidated corporate franchises;
- compliance with laws (including environmental laws);
- certain ERISA and pension matters;
- maintenance of certain properties;
- changes in fiscal years and fiscal quarters;
- additional guarantors and security;
- use of proceeds;
- further assurances;
- use of commercially reasonable efforts to maintain certain ratings;
- auditors, books and records; and
- certain other covenants, including agreements relating to the Intercreditor Deed (as defined below).

The Senior Secured Term Loans Agreement does not contain any financial maintenance covenants.

Repayment

The Senior Secured Term Loans made under the Senior Secured Term Loans Agreement are to be repaid in equal quarterly installments, in aggregate annual amounts equal to 1% of the original principal amount of the Senior Secured Term Loans (subject to adjustment as set forth below). The balance of any additional Senior Secured Term Loans outstanding will be payable on March 31, 2024. No amounts repaid by the Borrowers in respect of the Senior Secured Term Loans may be reborrowed.

Prepayments

Mandatory prepayments of the Senior Secured Term Loans are required in an amount equal to:

- starting with the financial year ended on December 31, 2017, 50% (reduced to 25% when the ratio of consolidated total net debt to consolidated EBITDA is less than or equal to 3.75 to 1.00 but greater than 3.25 to 1.00 and 0% when the ratio of consolidated total net debt to consolidated EBITDA is less than or equal to 3.25 to 1.00) of annual excess cash flow (subject to certain adjustments); and
- 100% of the net cash proceeds from any issuance or incurrence of debt, other than debt permitted under the Senior Secured Term Loans Agreement.

All mandatory prepayments of the Senior Secured Term Loans will be made without premium or penalty (except for reimbursement of breakage and redeployment costs in the case of LIBOR Loans) and will be applied to scheduled amortization installments of principal of the Senior Secured Term Loans in such order as the applicable Borrower may specify (or, absent such specification, in direct order of maturity).

Voluntary prepayments of the Senior Secured Term Loans are permitted without premium or penalty (except as set forth below and except for reimbursement of breakage and redeployment costs in the case of LIBOR Loans) and will be applied to the remaining scheduled amortization installments of principal of the Term Loans as directed by the Borrowers. Voluntary prepayments of the Senior Secured Term Loans made on or prior to the date that is 180 days after giving effect to the amendment and restatement of the Senior Secured Term Loans Agreements in connection with certain refinancing transactions are subject to an early prepayment premium equal to 1.0% of the amount of the Senior Secured Term Loans prepaid or mandatorily assigned pursuant to the applicable refinancing transaction.

Events of Default

The Senior Secured Term Loans Agreement sets out certain events of default, the occurrence of which would allow the lenders to accelerate all outstanding loans, including, among other events and subject in certain cases to agree to grace periods, thresholds and other qualifications:

- non-payment of amounts due under the Senior Secured Term Loans or under the other Senior Finance Documents (as defined in the Senior Secured Term Loans Agreement);
- breach of covenants;
- inaccuracy of representations and warranties in any material respect;
- cross defaults and certain judgment defaults;
- invalidity of the Senior Secured Term Loans Agreement and other Senior Finance Documents;
- certain bankruptcy and insolvency events;
- the occurrence of certain ERISA-related events;
- the occurrence of a change of control; and
- certain breaches of the Intercreditor Deed.

Miscellaneous

The Senior Secured Term Loans Agreement permits the Borrowers to request the establishment of one or more additional tranches of term loans in principal amounts of not less than \$50,000,000 individually, subject to certain conditions specified in the Senior Secured Term Loans Agreement.

The Senior Secured Term Loans-Agreement permits the Borrowers to request extensions of the final maturity of all or a portion of the Senior Secured Term Loans and, in that connection, there may be an increase in the interest rates and/or fees payable with respect to the extended Senior Secured Term Loans. Such extensions shall be subject to certain conditions described in the Senior Secured Term Loans Agreement.

The Senior Secured Term Loans Agreement contains customary “yank a bank” provisions allowing the Borrowers to replace a non-consenting lender in connection with (1) amendments and waivers requiring the consent of all lenders or all affected lenders (or all affected lenders of a particular class of lenders) so long as the required lenders (or, where the consent of the required lenders is not required, a majority in interest of the lenders of the relevant class) have consented to such amendments or waivers, (2) any Lender becoming a Defaulting Lender (as defined in the Senior Secured Term Loans Agreement), (3) any Lender failing to consent to any Extension/Modification Request (as defined in the Senior Secured Term Loans Agreement) made to such Lender and (4) requests by lenders for compensation for increased costs, taxes and similar items.

The Senior Secured Term Loans Agreement contains customary loan buyback provisions, which permits the Borrowers to purchase Senior Secured Term Loans from lenders pursuant to open-market transactions or a Dutch auction, subject to certain conditions, including a requirement that the loans purchased are automatically and permanently cancelled.

The Senior Secured Term Loans Agreement is governed by New York law.

Senior Secured Notes due 2026

Overview

On April 24, 2019, INEOS Finance plc issued €770,000,000 aggregate principal amount 2⁷/₈% Senior Secured Notes due 2026 (the “**2026 Senior Secured Notes**”) under an indenture dated as of April 24, 2019 (the “**2026 Senior Secured Notes Indenture**”), among INEOS Finance plc, each of the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee and principal paying agent (the “**2026 Senior Secured Notes Trustee**”), The Bank of New York Mellon SA/NV, Luxembourg Branch, as registrar, paying agent and Luxembourg transfer agent and Barclays Bank PLC, as security trustee. As of December 31, 2019, there were €770,000,000 aggregate principal amount of the 2026 Senior Secured Notes issued and outstanding.

Ranking

The 2026 Senior Secured Notes are the general senior secured obligations of INEOS Finance plc and rank equally in right of payment with its existing and future indebtedness that is not expressly subordinated to the 2026 Senior Secured Notes (including, without limitation, 2025 Senior Secured Notes, the Senior Secured Term Loans and the Schuldschein Loan), are guaranteed on a senior secured basis by the 2026 Senior Secured Notes Guarantors (as defined below), rank effectively senior to all existing and future indebtedness of INEOS Finance plc that is unsecured or secured by liens ranking behind the liens securing the 2026 Senior Secured Notes to the extent of the value of the collateral and rank senior in right of payment to all existing and future obligations of INEOS Finance plc subordinated in right of payment to the 2026 Senior Secured Notes, including its guarantee of obligations under the 2024 IGH Notes. In addition, the 2026 Senior Secured Notes are effectively subordinated in right of payment to all existing and future indebtedness and other liabilities, including trade payables and letters of credit issued by, Lux I’s non-guarantor subsidiaries.

Interest Rates, Payment Dates and Maturity

The 2026 Senior Secured Notes bear interest at a rate of 2⁷/₈% per annum. Interest on the 2026 Senior Secured Notes is payable semi-annually in arrears on May 1 and November 1 of each year, beginning November 1, 2019. The 2026 Senior Secured Notes will mature on November 1, 2026.

Guarantees

The 2026 Senior Secured Notes are jointly and severally guaranteed on a senior secured basis by IGH and the Guarantors (the “**2026 Senior Secured Notes Guarantors**”).

The guarantee of each 2026 Senior Secured Notes Guarantor is its general senior secured obligation and (i) ranks equally in right of payment with all existing and future obligations of such 2026 Senior Secured Notes Guarantor that are not expressly subordinated in right of payment to such guarantee, including with respect to the guarantee of the 2026 Senior Secured Notes by each 2026 Senior Secured Notes Guarantor, obligations under the Senior Secured Term Loans, the 2025 Senior Secured Notes, the Schuldschein Loan and, with respect to the guarantee of the 2025 Senior Secured Notes by IGH, the 2024 IGH Notes, (ii) ranks effectively senior to all existing and future obligations of such 2026 Senior Secured Notes Guarantor that are unsecured or secured by liens ranking behind the liens securing the 2026 Senior Secured Notes to the extent of the value of the collateral, (iii) ranks senior in right of payment to all existing and future obligations of such 2026 Senior Secured Notes Guarantor that are expressly subordinated in right of payment to such guarantee, including the guarantees of the 2024 IGH Notes (but not, in the case of IGH, its obligations under the 2024 IGH Notes) and (iv) is effectively subordinated to any existing and future obligations of such 2026 Senior Secured Notes Guarantor that are secured by liens senior to the liens securing such guarantee, or secured by property and assets that do not secure such guarantee, to the extent of the value of the property and assets securing such indebtedness and other liabilities. In the event of a bankruptcy or insolvency, each such secured lender of each 2026 Senior Secured Notes Guarantor will have a prior secured claim to any collateral of such 2026 Senior Secured Notes Guarantor securing the debt owed to them.

Security

The 2026 Senior Secured Notes and the related guarantees are secured by first priority liens (subject to certain exceptions) on the same assets that secure the obligations under the Senior Secured Term Loans, the 2025 Senior Secured Notes, the Schuldschein Loan, certain hedging liabilities and certain cash management liabilities.

Optional Redemption and Change of Control

At any time prior to May 1, 2022, INEOS Finance plc may redeem all or part of the 2026 Senior Secured Notes at a redemption price equal to 100% of the principal amount of the 2026 Senior Secured Notes redeemed plus the greater of (1) 1.0% of the principal amount of such 2026 Senior Secured Notes; and (2) the excess of (a) the present value at such redemption date of the redemption price of such 2026 Senior Secured Notes at May 1, 2022, plus all required interest payments that would otherwise be due to be paid on such 2026 Senior Secured Notes during the period between the redemption date and May 1, 2022, excluding accrued but unpaid interest, computed using a discount rate equal to the Bund rate at such redemption date plus 50 basis points, over (b) the principal amount of such 2026 Senior Secured Notes.

The 2026 Senior Secured Notes are subject to redemption at any time on or after May 1, 2022, at the option of INEOS Finance plc, in whole or in part, at the following redemption prices (expressed as percentages of the aggregate principal amount), if redeemed during the twelve-month period beginning on May 1 of the year indicated below:

Year	2026 Senior Secured Notes Redemption Price
2022	101.4375%
2023	100.71875%
2024 and thereafter	100.000%

together with certain additional amounts, if applicable, and accrued and unpaid interest, if any, to the redemption date (subject to the rights of holders of record on relevant record dates to receive interest due on an interest payment date).

At any time prior to May 1, 2022, INEOS Finance plc or any Parent Holdco (as defined in the 2026 Senior Secured Notes Indenture), at its option, may redeem up to 40% of the initial aggregate principal amount of each of the 2026 Senior Secured Notes and any additional 2026 Senior Secured Notes issued under the 2026 Senior Secured Notes Indenture (the “**Additional 2026 Senior Secured Notes**”) with the net cash proceeds of

certain public equity offerings at 102.875% of the aggregate principal amount of the 2026 Senior Secured Notes originally issued and the initial aggregate principal amounts of any Additional 2026 Senior Secured Notes, in each case, plus certain additional amounts, if applicable, and accrued and unpaid interest, if any, to the redemption date, if at least 60% of the sum of the originally issued aggregate principal amount of the 2026 Senior Secured Notes and any Additional 2026 Senior Secured Notes remains outstanding.

In connection with any tender offer for, or other offer to purchase, all of the 2026 Senior Secured Notes, if holders of not less than 90% of the aggregate principal amount of the then outstanding 2026 Senior Secured Notes validly tender and do not validly withdraw such 2026 Senior Secured Notes in such tender offer and INEOS Finance plc, or any other Person making such tender offer in lieu of the INEOS Finance plc, purchases all of the 2026 Senior Secured Notes validly tendered and not validly withdrawn by such holders, INEOS Finance plc will have the right, subject to certain notice requirements, to redeem all (but not less than all) 2026 Senior Secured Notes that remain outstanding following such purchase at a price equal to the highest price (excluding any tender premium or similar payment) paid to each other holder in such tender offer, plus, to the extent not included in the tender offer payment, accrued and unpaid interest thereon and certain additional amounts, to, but not including, the date of such redemption (subject to the rights of holders of record on the relevant record dates to receive interest due on an interest payment date).

Upon the occurrence of certain change of control events, each holder of 2026 Senior Secured Notes may require INEOS Finance plc to repurchase all or a portion of its 2026 Senior Secured Notes at a purchase price equal to 101% of the principal amount of such 2026 Senior Secured Notes, plus accrued and unpaid interest to, but not including, the date of purchase.

If INEOS Finance plc sells assets under certain circumstances, it is required to make an offer to purchase the 2026 Senior Secured Notes at 100% of the principal amount of the 2026 Senior Secured Notes, plus accrued and unpaid interest to, but not including, the date of purchase, with the excess proceeds from the sale of the assets.

In addition, in the event that INEOS Finance plc becomes obligated to pay Additional Amounts (as defined in the 2026 Senior Secured Notes Indenture) to holders of the 2026 Senior Secured Notes as a result of changes affecting withholding taxes applicable to payments on the 2026 Senior Secured Notes, it may redeem the 2026 Senior Secured Notes in whole but not in part at any time at 100% of the principal amount of the 2026 Senior Secured Notes plus accrued and unpaid interest to the redemption date.

Covenants

The 2026 Senior Secured Notes Indenture contains covenants that, among other things, limit the ability of our subsidiaries to:

- incur or guarantee additional indebtedness and issue certain preferred stock;
- layer debt;
- make restricted payments, including dividends or other distributions;
- prepay or redeem subordinated debt or equity;
- make certain investments;
- create or permit to exist certain liens;
- transfer, lease or sell certain assets;
- enter into arrangements that impose restrictions on the ability of our subsidiaries to pay dividends or make other payments to Lux I;
- engage in certain transactions with affiliates;
- consolidate, merge or transfer all or substantially all of our assets and the assets of our subsidiaries on a consolidated basis;

- impair the security interests for the benefit of the holders of the 2026 Senior Secured Notes; and
- amend certain documents.

These covenants are subject to a number of important limitations and exceptions. Currently, all of IGH's subsidiaries are Restricted Subsidiaries (as defined in the 2026 Senior Secured Notes Indenture).

Events of Default

The 2026 Senior Secured Notes Indenture contains customary events of default, including, among others, the non-payment of principal or interest on the 2026 Senior Secured Notes, certain failures to perform or observe any other obligation under the 2026 Senior Secured Notes Indenture or security documents, the failure to pay certain indebtedness or judgments and the bankruptcy or insolvency of IHL or any Significant Restricted Subsidiary (as defined in the 2026 Senior Secured Notes Indenture). The occurrence of any of the events of default would permit or require the acceleration of all obligations outstanding under the 2026 Senior Secured Notes.

Senior Secured Notes due 2025

Overview

On November 3, 2017, INEOS Finance plc issued €550,000,000 aggregate principal amount 2¹/₈% Senior Secured Notes due 2025 (the “**2025 Senior Secured Notes**”) under an indenture dated as of November 3, 2017, as amended (the “**2025 Senior Secured Notes Indenture**”), among INEOS Finance plc, each of the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee and principal paying agent (the “**2025 Senior Secured Notes Trustee**”), The Bank of New York Mellon SA/NV, Luxembourg Branch, as registrar, paying agent and Luxembourg transfer agent and Barclays Bank PLC, as security trustee. As of December 31, 2019, there were €550,000,000 aggregate principal amount of the 2025 Senior Secured Notes issued and outstanding.

Ranking

The 2025 Senior Secured Notes are the general senior secured obligations of INEOS Finance plc and rank equally in right of payment with its existing and future indebtedness that is not expressly subordinated to the 2025 Senior Secured Notes (including, without limitation, the Senior Secured Term Loans, the Schuldschein Loan and the 2026 Senior Secured Notes), are guaranteed on a senior secured basis by the 2025 Senior Secured Notes Guarantors (as defined below), rank effectively senior to all existing and future indebtedness of INEOS Finance plc that is unsecured or secured by liens ranking behind the liens securing the 2025 Senior Secured Notes to the extent of the value of the collateral and rank senior in right of payment to all existing and future obligations of INEOS Finance plc subordinated in right of payment to the 2025 Senior Secured Notes, including its guarantee of obligations under the 2024 IGH Notes. In addition, the 2025 Senior Secured Notes are effectively subordinated in right of payment to all existing and future indebtedness and other liabilities, including trade payables and letters of credit issued by, Lux I's non-guarantor subsidiaries.

Interest Rates, Payment Dates and Maturity

The 2025 Senior Secured Notes bear interest at a rate of 2¹/₈% per annum. Interest on the 2025 Senior Secured Notes is payable semi-annually in arrears on May 15 and November 15 of each year, beginning May 15, 2018. The 2025 Senior Secured Notes will mature on November 15, 2025.

Guarantees

The 2025 Senior Secured Notes are jointly and severally guaranteed on a senior secured basis by IGH and the Guarantors (the “**2025 Senior Secured Notes Guarantors**”).

The guarantee of each 2025 Senior Secured Notes Guarantor is its general senior secured obligation and (i) ranks equally in right of payment with all existing and future obligations of such 2025 Senior Secured Notes Guarantor that are not expressly subordinated in right of payment to such guarantee, including with respect to the guarantee of the 2025 Senior Secured Notes by each 2025 Senior Secured Notes Guarantor, obligations under the Senior Secured Term Loans, the Schuldschein Loan, the 2026 Senior Secured Notes and, with respect to the guarantee of the 2025 Senior Secured Notes by IGH, the 2024 IGH Notes, (ii) ranks

effectively senior to all existing and future obligations of such 2025 Senior Secured Notes Guarantor that are unsecured or secured by liens ranking behind the liens securing the 2025 Senior Secured Notes to the extent of the value of the collateral, (iii) ranks senior in right of payment to all existing and future obligations of such 2025 Senior Secured Notes Guarantor that are expressly subordinated in right of payment to such guarantee, including the guarantees of the 2024 IGH Notes (but not, in the case of IGH, its obligations under the 2024 IGH Notes) and (iv) is effectively subordinated to any existing and future obligations of such 2025 Senior Secured Notes Guarantor that are secured by liens senior to the liens securing such guarantee, or secured by property and assets that do not secure such guarantee, to the extent of the value of the property and assets securing such indebtedness and other liabilities. In the event of a bankruptcy or insolvency, each such secured lender of each 2025 Senior Secured Notes Guarantor will have a prior secured claim to any collateral of such 2025 Senior Secured Notes Guarantor securing the debt owed to them.

Security

The 2025 Senior Secured Notes and the related guarantees are secured by first priority liens (subject to certain exceptions) on the same assets that secure the obligations under the Senior Secured Term Loans, the Schuldschein Loan, the 2026 Senior Secured Notes, certain hedging liabilities and certain cash management liabilities.

Optional Redemption and Change of Control

At any time prior to November 15, 2020, INEOS Finance plc may redeem all or part of the 2025 Senior Secured Notes at a redemption price equal to 100% of the principal amount of the 2025 Senior Secured Notes redeemed plus the greater of (1) 1.0% of the principal amount of such 2025 Senior Secured Notes; and (2) the excess of (a) the present value at such redemption date of the redemption price of such 2025 Senior Secured Notes at November 15, 2020, plus all required interest payments that would otherwise be due to be paid on such 2025 Senior Secured Notes during the period between the redemption date and November 15, 2020, excluding accrued but unpaid interest, computed using a discount rate equal to the Bund rate at such redemption date plus 50 basis points, over (b) the principal amount of such 2025 Senior Secured Notes.

The 2025 Senior Secured Notes are subject to redemption at any time on or after November 15, 2020, at the option of INEOS Finance plc, in whole or in part, at the following redemption prices (expressed as percentages of the aggregate principal amount), if redeemed during the twelve-month period beginning on November 15 of the year indicated below:

Year	2025 Senior Secured Notes Redemption Price
2020	101.0625%
2021	100.53125%
2022 and thereafter	100.000%

together with certain additional amounts, if applicable, and accrued and unpaid interest, if any, to the redemption date (subject to the rights of holders of record on relevant record dates to receive interest due on an interest payment date).

At any time prior to November 15, 2020, INEOS Finance plc or any Parent Holdco (as defined in the 2025 Senior Secured Notes Indenture), at its option, may redeem up to 40% of the initial aggregate principal amount of each of the 2025 Senior Secured Notes and any additional 2025 Senior Secured Notes issued under the 2025 Senior Secured Notes Indenture (the “**Additional 2025 Senior Secured Notes**”) with the net cash proceeds of certain public equity offerings at 102.125% of the aggregate principal amount of the 2025 Senior Secured Notes originally issued and the initial aggregate principal amounts of any Additional 2025 Senior Secured Notes, in each case, plus certain additional amounts, if applicable, and accrued and unpaid interest, if any, to the redemption date, if at least 60% of the sum of the originally issued aggregate principal amount of the 2025 Senior Secured Notes and any Additional 2025 Senior Secured Notes remains outstanding.

In connection with any tender offer for, or other offer to purchase, all of the 2025 Senior Secured Notes, if holders of not less than 90% of the aggregate principal amount of the then outstanding 2025 Senior Secured Notes validly tender and do not validly withdraw such 2025 Senior Secured Notes in such tender offer and INEOS Finance plc, or any other Person making such tender offer in lieu of the INEOS Finance plc, purchases all of the 2025 Senior Secured Notes validly tendered and not validly withdrawn by such holders,

INEOS Finance plc will have the right, subject to certain notice requirements, to redeem all (but not less than all) 2025 Senior Secured Notes that remain outstanding following such purchase at a price equal to the highest price (excluding any tender premium or similar payment) paid to each other holder in such tender offer, plus, to the extent not included in the tender offer payment, accrued and unpaid interest thereon and certain additional amounts, to, but not including, the date of such redemption (subject to the rights of holders of record on the relevant record dates to receive interest due on an interest payment date).

Upon the occurrence of certain change of control events, each holder of 2025 Senior Secured Notes may require INEOS Finance plc to repurchase all or a portion of its 2025 Senior Secured Notes at a purchase price equal to 101% of the principal amount of such 2025 Senior Secured Notes, plus accrued and unpaid interest to, but not including, the date of purchase.

If INEOS Finance plc sells assets under certain circumstances, it is required to make an offer to purchase the 2025 Senior Secured Notes at 100% of the principal amount of the 2025 Senior Secured Notes, plus accrued and unpaid interest to, but not including, the date of purchase, with the excess proceeds from the sale of the assets.

In addition, in the event that INEOS Finance plc becomes obligated to pay Additional Amounts (as defined in the 2025 Senior Secured Notes Indenture) to holders of the 2025 Senior Secured Notes as a result of changes affecting withholding taxes applicable to payments on the 2025 Senior Secured Notes, it may redeem the 2025 Senior Secured Notes in whole but not in part at any time at 100% of the principal amount of the 2025 Senior Secured Notes plus accrued and unpaid interest to the redemption date.

Covenants

The 2025 Senior Secured Notes Indenture contains covenants that, among other things, limit the ability of our subsidiaries to:

- incur or guarantee additional indebtedness and issue certain preferred stock;
- layer debt;
- make restricted payments, including dividends or other distributions;
- prepay or redeem subordinated debt or equity;
- make certain investments;
- create or permit to exist certain liens;
- transfer, lease or sell certain assets;
- enter into arrangements that impose restrictions on the ability of our subsidiaries to pay dividends or make other payments to Lux I;
- engage in certain transactions with affiliates;
- consolidate, merge or transfer all or substantially all of our assets and the assets of our subsidiaries on a consolidated basis;
- impair the security interests for the benefit of the holders of the 2025 Senior Secured Notes; and
- amend certain documents.

These covenants are subject to a number of important limitations and exceptions. Currently, all of IGH's subsidiaries are Restricted Subsidiaries (as defined in the 2025 Senior Secured Notes Indenture).

Events of Default

The 2025 Senior Secured Notes Indenture contains customary events of default, including, among others, the non-payment of principal or interest on the 2025 Senior Secured Notes, certain failures to perform or observe any other obligation under the 2025 Senior Secured Notes Indenture or security documents, the failure to pay certain indebtedness or judgments and the bankruptcy or insolvency of IHL or any Significant Restricted Subsidiary (as defined in the 2025 Senior Secured Notes Indenture). The occurrence of any of the events of default would permit or require the acceleration of all obligations outstanding under the 2025 Senior Secured Notes.

IGH Notes due 2024

Overview

On August 9, 2016, INEOS Group Holdings S.A. issued \$500,000,000 aggregate principal amount of 5⁵/₈% Senior Notes due 2024 (the “**2024 IGH Dollar Notes**”) and €650,000,000 5³/₈% Senior Notes due 2024 (the “**2024 IGH Euro Notes**”) and together with the 2024 IGH Dollar Notes, the “**2024 IGH Notes**”) under an indenture dated as of August 9, 2016 (the “**2024 IGH Notes Indenture**”) among INEOS Group Holdings S.A., each of the guarantors named therein, The Bank of New York Mellon, London Branch, as trustee (the “**2024 IGH Notes Trustee**”), collateral agent, registrar and principal paying agent and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent and Luxembourg transfer agent. As of December 31, 2019, there were \$500,000,000 aggregate principal amount of 2024 IGH Dollar Notes and €650,000,000 aggregate principal amount of 2024 IGH Euro Notes issued and outstanding.

Ranking

The 2024 IGH Notes are the general unsubordinated obligations of IGH and rank equally with IGH’s existing and future senior indebtedness, rank senior to all of IGH’s existing and future subordinated indebtedness and are effectively subordinated to all of its existing and future secured indebtedness to the extent of the value of the assets securing such indebtedness, unless such assets also secure the 2024 IGH Notes on an equal and ratable basis. In addition, the 2024 IGH Notes are effectively subordinated to all existing and future indebtedness and other liabilities of IGH’s non-guarantor subsidiaries.

Interest Rates, Payment Dates and Maturity

The 2024 IGH Dollar Notes bear interest at a rate of 5⁵/₈% per annum. The 2024 IGH Euro Notes bear interest at a rate of 5³/₈% per annum. Interest on the 2024 IGH Notes is payable semi-annually in arrears on February 1 and August 1, beginning February 1, 2017. The 2024 IGH Notes will mature on August 1, 2024.

Guarantees

The 2024 IGH Notes are jointly and severally guaranteed on a senior subordinated basis by the Guarantors (other than IGH which is the issuer of the 2024 IGH Notes) (collectively, the “**2024 IGH Notes Guarantors**”).

The guarantees by the 2024 IGH Notes Guarantors are their senior subordinated obligations and rank behind all of the existing and future senior indebtedness (including any second secured liabilities) of the 2024 IGH Notes Guarantors, which includes the subsidiary guarantees under the 2026 Senior Secured Notes, the 2025 Senior Secured Notes, the Schuldschein Loan and the Senior Secured Term Loans, rank equally with the existing and future senior subordinated indebtedness of the 2024 IGH Notes Guarantors, rank senior to all of the existing and future subordinated indebtedness of the 2024 IGH Notes Guarantors other than indebtedness of the 2024 IGH Notes Guarantors that is secured by liens on the assets of the 2024 IGH Notes Guarantors, and are effectively subordinated to all of the existing and future secured indebtedness of the 2024 IGH Notes Guarantors to the extent of the value of the assets securing such indebtedness.

Security

The 2024 IGH Notes are secured by a second ranking assignment over the 2024 IGH Notes Proceeds Loans and a second ranking share charge over 100% of the shares of IHL. This security ranks behind the security granted over these assets which secures certain senior indebtedness, including indebtedness under the

2026 Senior Secured Notes, the 2025 Senior Secured Notes, the Schuldschein Loan and the Senior Secured Term Loans.

Optional Redemption and Change of Control

The 2024 IGH Notes are subject to redemption at any time, at the option of IGH, in whole or in part, at the following redemption prices (expressed as percentages of the aggregate principal amount), if redeemed during the twelve-month period beginning on August 1 of the year indicated below:

Year	2024 IGH Dollar Notes Redemption Price	2024 IGH Euro Notes Redemption Price
2020	101.406%	101.344%
2021 and thereafter	100.000%	100.000%

Upon the occurrence of certain change of control events, each holder of 2024 IGH Notes may require IGH to repurchase all or a portion of its 2024 IGH Notes at a purchase price equal to 101% of the principal amount of the 2024 IGH Notes, plus accrued interest to, but not including, the date of purchase.

If IGH sells assets under certain circumstances, IGH is required to make an offer to purchase the 2024 IGH Notes at 100% of the principal amount of the 2024 IGH Notes, plus accrued interest to, but not including, the date of purchase, with the excess proceeds from the sale of the assets.

In addition, in the event that IGH becomes obligated to pay Additional Amounts (as defined in the 2024 IGH Notes Indenture) to holders of the 2024 IGH Notes as a result of changes affecting withholding taxes applicable to payments on the 2024 IGH Notes, IGH may redeem the 2024 IGH Notes in whole but not in part at any time at 100% of the principal amount of the 2024 IGH Notes plus accrued interest to the redemption date.

Covenants

The 2024 IGH Notes Indenture contains covenants that, among other things, limit our ability and the ability of our subsidiaries to:

- incur or guarantee additional indebtedness and issue certain preferred stock;
- layer debt;
- make restricted payments, including dividends or other distributions;
- prepay or redeem subordinated debt or equity;
- make certain investments;
- create certain liens;
- transfer, lease or sell certain assets;
- in the case of our Restricted Subsidiaries (as defined in the 2024 IGH Notes Indenture), enter into arrangements that restrict dividends or other payments to us;
- in the case of our Restricted Subsidiaries (as defined in the 2024 IGH Notes Indenture), guarantee or secure debt;
- engage in certain transactions with affiliates;
- create Unrestricted Subsidiaries (as defined in the 2024 IGH Notes Indenture);
- consolidate, merge or transfer all or substantially all of our assets and the assets of our subsidiaries on a consolidated basis;

- impair the security interests for the benefit of the holders of the 2024 IGH Notes; and
- amend certain documents.

These covenants are subject to important exceptions and qualifications. Currently, all of IGH's subsidiaries are Restricted Subsidiaries (as defined in the 2024 IGH Notes Indenture).

Events of Default

The 2024 IGH Notes Indenture contains customary events of default, including, among others, the non-payment of principal or interest on the 2024 IGH Notes, certain failures to perform or observe any other obligation under the 2024 IGH Notes Indenture or security documents, the failure to pay certain indebtedness or judgments and the bankruptcy or insolvency of IGH or any Significant Restricted Subsidiary (as defined in the 2024 IGH Notes Indenture). The occurrence of any of the events of default would permit or require the acceleration of all obligations outstanding under the 2024 IGH Notes.

Letter of Credit Facility

On May 4, 2012, INEOS Treasury (UK) Limited (the "**LC Borrower**"), a wholly owned subsidiary of INEOS Investment Holdings (Germany) Limited, entered into an on-demand letter of credit facility (the "**LC Facility**") with Barclays Bank PLC (the "**Issuing Bank**"), under which the LC Borrower may request (on its own behalf or on behalf of other Group companies) the Issuing Bank to issue letters of credit, guarantees, performance bonds and indemnities (or any other instrument in a form agreed by the Issuing Bank) ("**LC Utilizations**"), the outstanding aggregate base currency amount of which is not more than €300 million. Under the terms of the LC Facility, the LC Borrower undertakes to provide cash collateral in an amount at least equal to the aggregate of 100% of the maximum actual and/or contingent liability of the Issuing Bank under each outstanding LC Utilization (or 105%, to the extent cash cover is provided in a currency other than the currency of an LC Utilization) standing to the credit of an account or certain accounts of the LC Borrower which are subject to a lien in favor of the Issuing Bank.

Noretyl Facility

As part of the Group's purchase of the remaining 50% interest in the Noretyl ethylene cracker at Rafnes, Norway from the Kerling group on July 1, 2015, the Group assumed the obligations of a €140 million loan facility (the "**Noretyl Facility**") that Noretyl AS (now known as INEOS Rafnes AS) had in place. The Noretyl Facility was amended by an amendment and restatement agreement dated 30 October 2014 and an amendment and accession agreement dated 8 November 2019. The current size of the Noretyl Facility is €250 million. The Noretyl Facility matures in November 2024. The total amount outstanding at December 31, 2019 was €250.0 million (December 31, 2018: €27.5 million, December 31, 2017: €55.0 million), none of which is due within one year (December 31, 2018: €27.5 million, December 31, 2017: €55.0 million).

The Noretyl Facility is to be repaid in equal semi-annually installments of €35.7 million, starting from December 2021. The facility is secured by pledges over the property, plant and equipment of INEOS Rafnes AS. The outstanding Noretyl Facility bears interest a rate per annum equal to EURIBOR (subject to a floor of 0% per annum) plus a margin of 2.10%.

Securitization Program

In July 2006, IHL and certain of the other Group companies (such other companies being the "**Sellers**") entered into a five-year €1,500.0 million receivables securitization (as amended, supplemented, varied, novated, extended or replaced from time to time, the "**Securitization Program**"). The margins on amounts drawn and the commitment fee on amounts undrawn under the Securitization Program have been amended from time to time, most recently on December 13, 2017 in respect of the margins and on December 14, 2015 in respect of the commitment fee. On December 14, 2015, amongst other things, the Securitization Program was updated to include certain newly incorporated Group entities as Sellers. The overall facility amount has also been amended from time to time, most recently to €800.0 million pursuant to an amendment deed dated December 14, 2015. On December 9, 2019, the scheduled termination date for the facility was extended to December 31, 2022. The Securitization Program complies with the terms for a Permitted Receivables Securitization as defined in the Senior Secured Term Loans Agreement.

Under the Securitization Program, the trade receivables originated by the Sellers (other than those receivables that are specifically identified as “**excluded receivables**”) are sold to a bankruptcy-remote special purpose vehicle incorporated under the laws of the Republic of Ireland, INEOS Finance (Ireland) Limited (the “**SPV**”). The SPV finances these purchases from borrowings, primarily funded through asset-backed commercial paper (“**ABCP**”) conduits. The cost of funding for the ABCP conduits reflects the rating of the pooled financial assets in which they invest, thus allowing the Securitization Program to benefit from financing costs that are not linked to the Group’s corporate rating.

The Securitization Program is restricted to receivables denominated in U.S. dollars, Canadian dollars, euro or sterling that are sold to the SPV at face value less a small discount to reflect the carry cost until settlement. In some jurisdictions, the sale of the receivables requires the involvement of an intermediate purchaser in order to comply with local securities and banking regulations. The SPV acquires title, on a non-recourse basis, to new receivables as the liability arises and settles its purchases with the Sellers on a twice-monthly basis. Between settlement dates, the Sellers have the use of the cash received from customers which has been paid into segregated bank accounts, either in the name of the SPV or held on trust for the SPV. Responsibility for the administration of the receivables, including adherence to established credit and collection policies, remains with the Sellers, with IHL acting on their behalf in its capacity as master servicer.

The twice-monthly settlement period is tied to the term of the loans advanced to the SPV by the lenders against the security of the outstanding receivables. The lenders’ advance rate is adjusted each month to reflect the actual performance of the receivables portfolio and standard Rating Agency methodology for calculating loss and dilution reserves and other potential shortfalls is applied. The balance of the SPV’s funding requirements is provided by IHL through a subordinated loan facility.

Köln CoGen Facility

As part of a project at the Group’s Köln site to replace part of its incineration or cogeneration unit, the Group has entered into a €120 million loan facility (“**Köln CoGen Facility**”). The facility matures in December 2024. There are no scheduled interest or amortization payments during the first two years of the facility. The total amount outstanding at December 31, 2019 was €120.0 million.

The Köln CoGen Facility is to be repaid in equal quarterly installments of €6 million, starting from March 2020. The facility is secured by pledges over the plant and equipment of INEOS Manufacturing Deutschland GmbH’s new cogeneration assets. The outstanding Köln CoGen Facility bears a fixed interest rate of 2.85% per annum.

Schuldschein Loan

Overview

INEOS Finance plc has a floating rate loan in an aggregate principal amount of €141.0 million (the “**Schuldschein Loan**”) outstanding under an assignable loan agreement dated March 22, 2019 among, *inter alios*, the INEOS Finance plc, the Guarantors, Deutsche Bank Aktiengesellschaft, as bank, creditor and paying agent and Wilmington Trust SP Services (Frankfurt) GmbH, as trustee.

Interest Rates, Payment Dates and Maturity

The Schuldschein Loan bears interest at a rate per annum equal to EURIBOR for an interest period of six months (subject to a floor of 0.50% per annum) plus a margin of 2.00%. Interest on the Schuldschein Loan is payable semi-annually in arrears on September 26 and March 26 of each year, beginning on September 26, 2019. The Schuldschein Loan will mature on March 26, 2024.

Security and Guarantees

The Schuldschein Loan shares the same security package as the Senior Secured Term Loans and the Senior Secured Notes. The obligations under the Schuldschein Loan are jointly and severally guaranteed on a senior basis by IGH and the Senior Secured Term Loans Guarantors. The obligations under the Schuldschein Loan are secured by the same collateral securing the Senior Secured Term Loans and the Senior Secured Notes, including, subject to certain exceptions, substantially all of the assets of IGH and the Senior Secured Term Loans Guarantors. Such security includes first priority security interests over the collateral that secures the 2024 IGH Notes on a second priority basis (*i.e.*, the IHL Pledged Shares and the 2024 IGH Notes Proceeds Loans).

Covenants and Events of Default

The Schuldschein Loan contains negative covenants, affirmative covenants and events of default that generally conform to the negative covenants, certain affirmative covenants and events of default applicable to the Senior Secured Term Loans. For so long as the aggregate principal amount of the loans outstanding under the Senior Secured Term Loans Agreement represents at least 200% of the aggregate principal amount outstanding under the Schuldschein Loan Agreement, if at any time INEOS Finance plc enters into any amendment, modification or restatement of the Senior Secured Term Loans Agreement which concerns a provision that is substantially the same as the respective provision under the Schuldschein Loan Agreement (including, *inter alia*, in respect of the guarantor and security release provisions, negative covenants, affirmative covenants and events of default, and related definitions), then such amendment, modification or restatement shall be deemed to be incorporated by reference into, and apply to, the Schuldschein Loan Agreement *mutatis mutandis* as if set forth fully in the Schuldschein Loan Agreement.

Change of Control

Upon the occurrence of certain change of control events, each lender under the Schuldschein Loan Agreement may require INEOS Finance plc to repay such lender's outstanding nominal amount of the Schuldschein Loan in an amount equal to 101% of such outstanding nominal amount of the Schuldschein Loan, plus accrued and unpaid interest to, but not including, the date of repayment.

Miscellaneous

The Schuldschein Loan Agreement is governed by German law.

Intercreditor Deed

Unless the context otherwise requires, terms defined below in this description of the Intercreditor Deed apply only to this section.

Overview

Lux I and certain of its subsidiaries (including IHL and INEOS Finance plc) (together, the “**Obligors**”), the Parent (as the issuer of the 2024 IGH Notes) and INEOS Holdings Luxembourg S.A. (together, and collectively with certain other entities referred to in the Intercreditor Deed, the “**Subordinated Creditors**”) and certain INEOS intra-group creditors (the “**Intra-Group Creditors**”) are subject to an intercreditor deed dated May 12, 2010 (as amended and restated by a first amendment deed dated December 23, 2010, as further amended by a second amendment deed dated February 18, 2011, as further amended by a third amendment deed dated February 6, 2012, as further amended and restated by a fourth amendment deed dated May 4, 2012, as further amended and restated by a fifth amendment deed dated May 8, 2013, as further amended and restated by a sixth amendment deed dated July 8, 2014, as further amended by a seventh amendment deed dated May 5, 2015, as further amended and restated by an eighth amendment deed dated January 5, 2017, as further amended and restated by a ninth amendment deed dated November 3, 2017, as further amended by a tenth amendment deed dated March 22, 2019 and as further amended by an eleventh amendment deed dated April 24, 2019 (the “**Intercreditor Deed**”) entered into with the lenders under the Senior Secured Term Loans Agreement (the “**Senior Lenders**”), Barclays Bank PLC as administrative agent (the “**Senior Facility Agent**”) for the Senior Lenders and as security agent (the “**Senior Security Agent**”) for itself, the Senior Lenders, the institutions named therein as hedge counterparties or cash management banks, the lenders under the Schuldschein Loan Agreement, the holders of the Senior Secured Notes, and any other permitted senior secured notes issued from time to time (the “**Additional Senior Secured Notes**”), the trustee under the 2024 IGH Notes Indenture (the “**2024 IGH Notes Trustee**”), the trustee under the 2025 Senior Secured Notes Indenture (the “**2025 Senior Secured Notes Trustee**”), the trustee under the Schuldschein Loan Agreement (the “**Schuldschein Loan Trustee**”) and the trustee under the 2026 Senior Secured Notes Indenture (the “**2026 Senior Secured Notes Trustee**”) and, together with the 2025 Senior Secured Notes Trustee, the “**Senior Secured Notes Trustees**”).

The Intercreditor Deed sets out, by way of agreement between the parties to it, among other things, provisions relating to:

- the relative ranking of certain liabilities of the Obligors;
- the relative ranking of certain security granted by the Obligors and the Parent;

- when payments can be made in respect of certain liabilities of the Obligor and the Parent;
- when enforcement action can be taken in respect of those liabilities;
- the terms pursuant to which certain of those liabilities will be subordinated upon the occurrence of certain insolvency events;
- turnover provisions; and
- when security and guarantees may be released to permit an enforcement sale.

The following description is a summary of certain provisions contained in the Intercreditor Deed. It does not restate the Intercreditor Deed in its entirety and we urge you to read that document because it, and not the discussion that follows, will regulate and govern, among other things, certain of the rights of the lenders under the Senior Secured Term Loans Agreement, the lenders under the Schuldschein Loan Agreement, the holders of the Senior Secured Notes, the holders of the 2024 IGH Notes, the Senior Facility Agent, the Schuldschein Loan Trustee, the 2024 IGH Notes Trustee and the Senior Secured Notes Trustees.

Ranking and Priority

The Intercreditor Deed provides that, subject to the provisions in respect of permitted payments (summarized below), the liabilities of the Obligor in respect of the Senior Secured Notes, the Senior Secured Term Loans, the Schuldschein Loan, the 2024 IGH Notes, and certain other liabilities rank, in summary, in the following order and are postponed and subordinated to any prior ranking liabilities of the Obligor as follows:

- first, each of the following, *pari passu* among themselves: (i) the liabilities of the Obligor under the Senior Secured Term Loans Agreement, under the Schuldschein Loan Agreement and under any other Additional Senior Finance Documents (as defined in the Intercreditor Deed), the liabilities of any Obligor party to certain hedging agreements and cash management arrangements, the liabilities of INEOS Finance plc and the guarantors under the Senior Secured Notes, the Senior Secured Notes Indentures and any Additional Senior Secured Notes (together, the “**Senior Liabilities**”), (ii) fees, costs and expenses of, and amounts incurred by or payable to, the 2024 IGH Notes Trustee (the “**High Yield Note Trustee Amounts**”), (iii) fees, costs and expenses incurred by or payable to the Senior Facility Agent or any agent appointed to act as security trustee, facility agent or other similar representative for or with respect to any Additional Senior Finance Parties (as defined in the Intercreditor Deed) (including the Schuldschein Loan Trustee) or any agents appointed to act as security agent and security trustee on behalf of more than one class of holders of the 2024 IGH Notes or any other High Yield Notes or fees, costs and expenses incurred by any Second Secured Representative (as defined in the Intercreditor Deed) (other than in respect of any Second Secured Liabilities (as defined in the Intercreditor Deed)) in the form of notes issued pursuant to one or more indentures (“**Agency Amounts**”), (iv) fees, costs and expenses of, and amounts incurred by or payable to, the Senior Secured Notes Trustees and the trustee of any Additional Senior Secured Notes (each, an “**Additional Senior Secured Notes Trustee**”) (collectively, the “**Senior Secured Note Trustee Amounts**”), and (v) fees, costs and expenses of, and amounts incurred by or payable to any Second Secured Note Trustee (the “**Second Secured Note Trustee Amounts**”);
- second, any Second Secured Liabilities (as defined in the Intercreditor Deed);
- third, the liabilities of the Obligor in relation to the 2024 IGH Notes (other than in respect of High Yield Note Trustee Amounts) and the liabilities owed by IHL or Lux I (to the extent it is a borrower of a High Yield Proceeds Loan (as defined in the Intercreditor Deed)) to the Parent or any other permitted lenders (such other lenders, together with Parent, the “**High Yield Proceeds Lenders**”) under any loan of the proceeds of the 2024 IGH Notes or any other High Yield Notes (together, the “**Subordinated High Yield Liabilities**”);
- fourth, (i) the liabilities of the Obligor to the Subordinated Creditors (other than in respect of any High Yield Proceeds Loan or any loan of the proceeds of any funds made available under any documents pursuant to or in connection with which any Second Secured Liabilities arise (the “**Second Secured Documents**”) to IHL or Lux I (each, a “**Second Secured Proceeds Loan**”)), (ii) any liabilities owed by IHL, the Parent, or any other High Yield Note Issuer (as defined in the

Intercreditor Deed) or any Additional Second Secured Borrower (as defined in the Intercreditor Deed) to any Subordinated Creditor under certain investor documents, (iii) any other money or liabilities due, owing or payable by any Obligor to the Parent, or any other High Yield Note Issuer or any Additional Second Secured Borrower or any parent holding company of the Parent which has acceded to the Intercreditor Deed (other than in respect of any High Yield Proceeds Loan or any Second Secured Proceeds Loan) (the liabilities referred to in paragraphs (i) to (iii) being, together, the “**Subordinated Liabilities**”), and (iv) any liabilities of the Obligors to the Intra-Group Creditors in such capacity (other than liabilities under the Senior Secured Notes Proceeds Loans, the Schuldschein Proceeds Loan, the Senior Secured Term Loans Proceeds Loan or certain other loans of the proceeds of any Senior Liabilities to IHL or any Restricted Subsidiary of the Bottom Swiss Subsidiary (as defined in the Intercreditor Deed) (collectively, the “**Senior Proceeds Loans**”)) (the “**Intra-Group Liabilities**”).

The Intercreditor Deed does not purport to rank any of the Subordinated Liabilities or Intra-Group Liabilities as between themselves. The Intercreditor Deed also provides that, subject to the provisions in respect of permitted payments, the Subordinated Liabilities are postponed and subordinated until the Senior Liabilities, liabilities of the Obligors and the Parent to the holders of the 2024 IGH Notes and the 2024 IGH Notes Trustee (the “**High Yield Liabilities**”) and the Second Secured Liabilities have been discharged in full.

The parties to the Intercreditor Deed agree in the Intercreditor Deed that the liens and other security provided by the Parent and the Obligors rank in the following order:

- first, the security provided in respect of the Senior Liabilities;
- second, any security provided separately in respect of the Second Secured Liabilities, if any; and
- third, the security provided in respect of the 2024 IGH Notes Indenture and the 2024 IGH Notes and any other High Yield Notes.

Under the Intercreditor Deed, all proceeds from enforcement of security to which the Intercreditor Deed applies are required to be applied in accordance with the terms of the Intercreditor Deed, summarized below under “Application of Proceeds.” Certain security granted by members of the Group (being, for the purposes of the Intercreditor Deed, Lux I and its subsidiaries), for example certain liens granted by the Obligors, are not governed by the Intercreditor Deed.

Permitted Payments

The Intercreditor Deed permits, *inter alia*, payments to be made by the Obligors, each Additional Senior Secured Borrower (as defined in the Intercreditor Deed), and the Parent and each other High Yield Note Issuer to the Senior Lenders under the Senior Secured Term Loans Agreement, the lenders under the Schuldschein Loan Agreement, the holders of the Senior Secured Notes, the Schuldschein Loan Trustee, the Senior Secured Notes Trustees, (subject to certain restrictions) certain hedge counterparties, certain cash management banks and to lenders under any Additional Senior Finance Documents and holders of any Additional Senior Secured Notes and the Additional Senior Secured Notes Trustees with respect thereto. The Intercreditor Deed also permits payments to be made without further consents being obtained:

- by the Obligors in respect of any Second Secured Liabilities (x) to the extent that the payment is (i) a payment of scheduled interest (or default interest), (ii) a payment under any customary tax gross-up, tax indemnity, illegality or increased costs provision, currency indemnity or indemnity in respect of costs and expenses contained in the Second Secured Documents, or (iii) any consent fee payment customary for the amendment of the Second Secured Documents, in each case so long as such payment is then due and not prohibited by any payment blockage described below, and (y) for so long as such payment is not prohibited by any payment blockage described below, any Obligor may (i) on or after the original maturity date of the Second Secured Liabilities; and (ii) at any time in connection with any provision of the Second Secured Documents specifying a mandatory repayment, offer to purchase or redemption which is either permitted or, if not permitted, *provided* that consent is obtained from the Majority Senior Lenders, each relevant Additional Senior Facilities Representative and each relevant Senior Secured Notes Trustee and Additional Senior Secured Notes Trustee (as applicable), pay the principal amount due or any other amount payable by it with respect to the Second Secured Liabilities or redeem, acquire or defease the Second Secured Liabilities;

- by the Obligors to the 2024 IGH Notes Trustee or holders of the 2024 IGH Notes and any other High Yield Notes or High Yield Note Trustee pursuant to the guarantees to the extent that the payment is (i) a payment of scheduled interest (or default interest), (ii) a payment under any tax gross-up, tax indemnity or increased costs provisions, provided such provisions are in customary form, or (iii) a consent fee payment customary for the amendment of the 2024 IGH Notes Indenture and certain other documents entered into in connection with the 2024 IGH Notes Indenture or any other High Yield Documents, in each case so long as such payment is then due and not prohibited by any payment blockage as described below (except that payments in respect of High Yield Note Trustee Amounts may always be made);
- by IHL or Lux I as borrowers under any High Yield Proceeds Loan to the Parent or any other High Yield Proceeds Lenders in respect of cash interest on any High Yield Proceeds Loan to enable the Parent or any other High Yield Note Issuer to make a payment of scheduled interest and default interest in respect of the 2024 IGH Notes or any additional High Yield Notes (as defined in the Intercreditor Deed) (the “**Additional High Yield Notes**,” together with the 2024 IGH Notes, the “**High Yield Notes**”), which payment must fall due within five (5) days of the date of payment of the corresponding interest by IHL or Lux I to the applicable High Yield Note Issuer, and certain other payments by IHL or Lux I to the Parent or any other High Yield Proceeds Lender in respect of sums due under any High Yield Notes (as applicable) and related documents permitted by the Intercreditor Deed, so long as any such payment is not prohibited by any payment blockage as described below (except that payments in respect of High Yield Note Trustee Amounts may always be made); and
- by the Obligors in respect of Intra-Group Liabilities if (i) at the time of the payment no Enforcement Action (as defined below) has occurred and is continuing in respect of the Senior Liabilities or any Second Secured Liabilities, (ii) prior to the date on which all Senior Liabilities have been unconditionally discharged in full (the “**Senior Discharge Date**”), the consent of the Instructing Group (as defined in the Intercreditor Deed) to the relevant payment is obtained or (iii) on or after the Senior Discharge Date but prior to the date on which all Second Secured Liabilities have been unconditionally discharged in full (the “**Second Secured Discharge Date**”), the consent of the Majority Second Secured Creditors (as defined in the Intercreditor Deed) is obtained.

Prior to the later of the Senior Discharge Date and the Second Secured Discharge Date, no Obligor, Additional Second Secured Borrower or High Yield Note Issuer or any of their subsidiaries may make any payments in respect of the Subordinated Liabilities unless, prior to the Senior Discharge Date, where the relevant action is prohibited under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, the Additional Senior Finance Documents or the Senior Secured Note Documents, the prior consent of the Majority Senior Lenders (as defined in the Intercreditor Deed), each security trustee, facility agent or other similar representative with respect to the creditors under each Additional Senior Finance Document (the “**Additional Senior Facilities Representative**”), each Senior Secured Notes Trustee and Additional Senior Secured Notes Trustee (as applicable and relevant) is obtained and, following the Senior Discharge Date but prior to the Second Secured Discharge Date, where the relevant action is prohibited under any Second Secured Document, of the Majority Second Secured Creditors is obtained.

As defined in the Intercreditor Deed, the term “Instructing Group” means the senior creditors under the Intercreditor Deed whose senior credit participations at the relevant time constitute the simple majority in aggregate principal amount of the total senior credit participations at the relevant time.

Payment Blockage

Prior to the Senior Discharge Date, if any Obligor fails to pay on the due date or within any applicable grace period any amount payable under the Senior Finance Documents (including relevant hedging agreements and cash management arrangements), the Schuldschein Loan Agreement, any Additional Senior Finance Document, the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, the 2026 Senior Secured Notes or the 2025 Senior Secured Notes or any indenture of any Additional Senior Secured Notes (the “**Additional Senior Secured Notes Indenture**”) or any Additional Senior Secured Notes (all such senior secured notes and indentures, collectively, the “**Senior Secured Notes And Notes Indentures**”) (other than an amount not constituting principal, interest or fees not in excess of €1,000,000 (or its equivalent in any other currency)), the Obligors may not make payments in respect of the Second Secured Liabilities while that failure

is continuing. Permitted payments in respect of the Second Secured Liabilities may be resumed when such payment default is cured or waived.

Prior to the Senior Discharge Date, if there is any other default that occurs and is continuing under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, any Additional Senior Finance Documents or any Senior Secured Notes And Notes Indentures, the Senior Facility Agent (on the instructions of the Majority Senior Lenders (as defined in the Intercreditor Deed)), the Schuldschein Loan Trustee, or the relevant Additional Senior Facilities Representative or any Senior Secured Notes Trustee (as applicable) may issue a written stop notice (a “**Second Secured Stop Notice**”) to each note trustee, security trustee, facility agent or other similar representative with respect to any holders of interests representing Second Secured Liabilities (the “**Second Secured Creditors**”) (each, a “**Second Secured Representative**”) and notify IHL. From the date of the issue of such notice, the Obligors may not make payments in respect of the Second Secured Liabilities for a period of 179 days (the “**Second Secured Stop Period**”), subject to certain exceptions described below.

Prior to the Senior Discharge Date, from the date of issue of a Second Secured Stop Notice for the duration of the Second Secured Stop Period, no payments may be made that would otherwise be permitted by the Intercreditor Deed in respect of the Second Secured Liabilities unless:

- the event in respect of which the Second Secured Stop Notice was issued has been cured or waived in writing by (if the default has occurred and is (or immediately prior to the waiver was) continuing at such time with respect to the Senior Secured Term Loans Agreement) the Senior Facility Agent, (if the default has occurred and is (or immediately prior to the waiver was) continuing at such time with respect to the Schuldschein Loan Agreement) the Schuldschein Loan Trustee, (if the default is (or immediately prior to the waiver was) continuing with respect to any Additional Senior Finance Documents (as defined in the Intercreditor Deed)) the relevant Additional Senior Facilities Representative, (if the default is (or immediately prior to the waiver was) continuing with respect to the 2026 Senior Secured Notes), the 2026 Senior Secured Notes Trustee, (if the default is (or immediately prior to the waiver was) continuing with respect to the 2025 Senior Secured Notes), the 2025 Senior Secured Notes Trustee and (if the default is (or immediately prior to the waiver was) continuing with respect to any Additional Senior Secured Notes), the Additional Senior Secured Notes Trustee relating thereto or has ceased to exist;
- (if at any time of cancellation or consent, a default is continuing under the Senior Secured Term Loans Agreement) the Senior Facility Agent, (if at any time of cancellation or consent, a default is continuing under the Schuldschein Loan Agreement) the Schuldschein Loan Trustee, (if at the time of cancellation or consent, a default is continuing under any Additional Senior Finance Documents) the relevant Additional Senior Facilities Representative, (if at the time of cancellation or consent, a default is continuing under the 2026 Senior Secured Notes) the 2026 Senior Secured Notes Trustee, (if at the time of the cancellation or consent, a default is continuing under the 2025 Senior Secured Notes) the 2025 Senior Secured Notes Trustee and (if at the time of cancellation or consent, a default is continuing under any Additional Senior Secured Notes) the Additional Senior Secured Notes Trustee cancels the Second Secured Stop Notice or consents to such payment; or
- if applicable, any Second Secured Standstill Period (as defined below) in effect at the time the Second Secured Stop Notice was issued has expired and the relevant event of default to which the Second Secured Standstill Period relates has not been cured or waived.

No Second Secured Stop Notice may be served by the Senior Facility Agent, the Schuldschein Loan Trustee, any Additional Senior Facilities Representative or any Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee in reliance on a particular payment blockage event more than 75 days after the Senior Facility Agent, the Schuldschein Loan Trustee, any Additional Senior Facilities Representative, or any Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee (as applicable) receives notice in writing specifying the occurrence constituting that payment blockage event. Not more than one Second Secured Stop Notice may be served with respect to the same event or set of circumstances. No Second Secured Stop Notice in relation to a payment blockage event may be served unless (i) 365 days have elapsed since the delivery of any previous Second Secured Stop Notice in relation to a payment blockage event and (ii) all scheduled payments of interest on the Second Secured Liabilities that have become due as a result of any previous Second Secured Stop Notice have been paid in full in cash.

Any failure to make a payment due in respect of the Second Secured Liabilities as a result of the issue of a Second Secured Stop Notice will not prevent the occurrence of an event of default under the Second

Secured Documents as a consequence of such non-payment or the commencement of an Enforcement Action (defined below) otherwise permitted by the Intercreditor Deed.

If any Obligor fails to pay on the due date or within any applicable grace period any amount payable under the Senior Finance Documents (including relevant hedging agreements and cash management arrangements), the Schuldschein Loan Agreement, any Additional Senior Finance Document, any Senior Secured Notes And Notes Indentures or any Second Secured Document (other than an amount not constituting principal, interest or fees not in excess of €1,000,000 (or its equivalent in any other currency)), the Obligors may not make payments (except if such payment is in the form of Permitted High Yield Note Junior Securities (as defined in the Intercreditor Deed) or comprises High Yield Note Trustee Amounts) in respect of the Subordinated High Yield Liabilities while that failure is continuing. Such payments in respect of any High Yield Notes may be resumed to the extent permitted under the Intercreditor Deed when such payment default is cured or waived.

Prior to the later of the Senior Discharge Date and the Second Secured Discharge Date, if there is any other default that occurs and is continuing under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, any Additional Senior Finance Document, any Senior Secured Notes And Notes Indentures or, following the Senior Discharge Date, under any Second Secured Document, the Senior Facility Agent (on the instructions of the Majority Senior Lenders) or the relevant Additional Senior Facilities Representative, the Schuldschein Loan Trustee, any Senior Secured Notes Trustee, any Additional Senior Secured Notes Trustee or the relevant Second Secured Representative (as applicable) may issue a payment blockage notice (a “**Stop Notice**”) to the 2024 IGH Notes Trustee and other High Yield Note Trustees and notify each High Yield Representative (as defined in the Intercreditor Deed). From the date of the issue of such notice, the Obligors may not make any payments (except if such payment comprises High Yield Note Trustee Amounts) in respect of the Subordinated High Yield Liabilities or any High Yield Proceeds Loan for a period of 179 days (the “**High Yield Stop Period**”), subject to certain exceptions described below.

Prior to the later of the Senior Discharge Date and the Second Secured Discharge Date, from the date of issue of a Stop Notice for the duration of the High Yield Stop Period, blocked payments may not be made unless:

- the event in respect of which the Stop Notice was issued has been cured or, prior to the Senior Discharge Date, waived in writing (if the default is (or immediately prior to the waiver was) continuing with respect to the Senior Secured Term Loans Agreement) by the Senior Facility Agent, (if the default is (or immediately prior to the waiver was) continuing with respect to the Schuldschein Loan Agreement) by the Schuldschein Loan Trustee, (if the default is (or immediately prior to the relevant waiver was) continuing with respect to any Additional Senior Finance Documents) the relevant Additional Senior Facilities Representative, (if the default is (or immediately prior to the waiver was) continuing with respect to the 2026 Senior Secured Notes) the 2026 Senior Secured Notes Trustee, (if the default is (or immediately prior to the waiver was) continuing with respect to the 2025 Senior Secured Notes) the 2025 Senior Secured Notes Trustee, and (if the default is (or immediately prior to the waiver was) continuing with respect to any Additional Senior Secured Notes) the relevant Additional Senior Secured Notes Trustee or, following the Senior Discharge Date and prior to the Second Secured Discharge Date, waived in writing by the relevant Second Secured Representative or has ceased to exist;
- prior to the Senior Discharge Date, (if at the time of cancellation or consent, a default is continuing under the Senior Facilities) the Senior Facility Agent, (if at any time of cancellation or consent, a default is continuing under the Schuldschein Loan Agreement) the Schuldschein Loan Trustee, (if at the time of cancellation or consent, a default is continuing under any Additional Senior Finance Documents) the relevant Additional Senior Facilities Representative, (if at the time of cancellation or consent, a default is continuing under the 2026 Senior Secured Notes) the 2026 Senior Secured Notes Trustee, (if at the time of the cancellation or consent, a default is continuing under the 2025 Senior Secured Notes) the 2025 Senior Secured Notes Trustee, and (if at the time of cancellation or consent, a default is continuing under any Additional Senior Secured Notes) the relevant Additional Senior Secured Notes Trustee cancels the Stop Notice or consents to such payment;
- prior to the Senior Discharge Date, the Senior Liabilities have been repaid in full and all the commitments of the Senior Creditors (as defined in the Intercreditor Deed) cancelled or following the Senior Discharge Date the Second Secured Liabilities have been repaid in full; or

- if applicable, any High Yield Standstill Period (as defined below) in effect at the time the payment Stop Notice was issued has expired and the relevant event of default to which the High Yield Standstill Period relates has not been cured or waived.

No Stop Notice may be served by the Senior Facility Agent, the Schuldschein Loan Trustee, an Additional Senior Facilities Representative or any Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee or a Second Secured Representative (as applicable) in reliance on a particular payment blockage event more than 75 days after the Senior Facility Agent, the Schuldschein Loan Trustee, each Additional Senior Facilities Representative, a Senior Secured Notes Trustee, an Additional Senior Secured Notes Trustee or a Second Secured Representative receives notice in writing specifying the occurrence constituting that payment blockage event. Not more than one Stop Notice may be served by the Senior Facility Agent, the Schuldschein Loan Trustee, each Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee or each Second Secured Representative (as applicable) with respect to the same event or set of circumstances. No Stop Notice in relation to a payment blockage event may be served unless (i) 365 days have elapsed since the delivery of any previous Stop Notice in relation to a payment blockage event, and (ii) all scheduled payments of interest on any High Yield Notes that have become due as a result of any previous Stop Notice have been paid in full in cash.

Any failure to make a payment due under the 2024 IGH Notes Indenture or the indenture for any Additional High Yield Notes (the “**Additional High Yield Notes Indenture**,” together with the 2024 IGH Notes Indenture, the “**High Yield Notes Indentures**”) or the guarantees of any High Yield Notes as a result of the foregoing will not prevent the occurrence of an event of default under the 2024 IGH Notes or any other High Yield Notes as a consequence of such non-payment or the commencement of an Enforcement Action otherwise permitted by the Intercreditor Deed.

Entitlement to Enforce

The Intercreditor Deed provides that the Senior Security Agent will (subject to certain exceptions) enforce the senior security only at the direction of the Instructing Group. Subject to certain exceptions in relation to the Second Secured Security (as defined in the Intercreditor Deed), prior to the Senior Discharge Date, the Second Secured Creditors may only take Enforcement Action with respect to the guarantees or security granted pursuant to the Intercreditor Deed in respect of the Second Secured Liabilities or any Second Secured Proceeds Loan if:

- the prior written consent of the Instructing Group is obtained;
- the Senior Creditors have taken certain Enforcement Action in which case the Second Secured Creditors may take the same Enforcement Action against the same Obligor;
- the Second Secured Creditors have become entitled to do so as a result of the expiry of any Second Secured Standstill Period unless on the expiry of the Second Secured Standstill Period the relevant default to which the Second Secured Standstill Period relates has been waived or cured; or
- certain insolvency events have occurred and are continuing, provided that any such insolvency event is not the result of actions of a Second Secured Creditor prohibited under the Intercreditor Deed and provided Enforcement Action may only be taken against the entity in respect of which the insolvency event has occurred.

Prior to the Senior Discharge Date and the Second Secured Discharge Date, the holders of any High Yield Notes and the 2024 IGH Notes Trustee or the trustee under any Additional High Yield Notes (the “**Additional High Yield Notes Trustee**,” together with the 2024 IGH Notes Trustee, the “**High Yield Notes Trustees**”) and any lender under any High Yield Proceeds Loan (together, the “**High Yield Creditors**”) may only take Enforcement Action with respect to the guarantees and security granted in respect of any High Yield Notes or the High Yield Proceeds Loan if:

- the prior written consent of (prior to the Senior Discharge Date) the Instructing Group and (prior to the Second Secured Discharge Date) the Majority Second Secured Creditors (as defined in the Intercreditor Deed) is obtained;
- the Senior Creditors and/or any Second Secured Creditors have taken Enforcement Action against an Obligor in which case the High Yield Creditors may take Enforcement Action against the same Obligor but may not take any other Enforcement Action until the Senior Discharge Date and any

Second Secured Discharge Date shall have occurred except after expiry of a High Yield Standstill Period;

- the High Yield Creditors, as applicable, have become entitled to do so as a result of the expiry of any High Yield Standstill Period unless on the expiry of the High Yield Standstill Period the relevant default to which the High Yield Standstill Period relates has been waived or cured; or
- if certain insolvency events have occurred and are continuing, *provided* that any such insolvency event is not the result of actions of a High Yield Creditor prohibited under the Intercreditor Deed and provided Enforcement Action may only be taken against the entity in respect of which the insolvency event has occurred.

A “**Second Secured Standstill Period**” is defined in the Intercreditor Deed to mean a period of 179 days after written notice has been given by the Majority Second Secured Creditors (as defined in the Intercreditor Deed) to the Senior Facility Agent, the Schuldschein Loan Trustee, each Additional Senior Facilities Representative and each Senior Secured Notes Trustee and Additional Senior Secured Notes Trustee that an event of default has occurred as a result of any failure to pay any amount of the Second Secured Liabilities when due and payable and is continuing, and specifying that a Second Secured Standstill Period is to commence.

A “**High Yield Standstill Period**” is defined in the Intercreditor Deed to mean a period of 179 days after written notice has been given by any High Yield Notes Trustee to the Senior Facility Agent, the Schuldschein Loan Trustee, each Additional Senior Facilities Representative, any Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee and each Second Secured Representative that an event of default under any High Yield Notes has occurred and is continuing, and specifying that a High Yield Standstill Period is to commence.

An “**Enforcement Action**” is defined in the Intercreditor Deed to mean:

- (a) the acceleration of any liabilities or any declaration that any liabilities are prematurely due and payable or the making of demand for payment of any liabilities after such liabilities have been made payable on demand;
- (b) without prejudice to the right of a hedging counterparty to terminate or close out a hedging transaction as otherwise expressly permitted by the Intercreditor Deed, the designation by a hedge counterparty of an early termination date under any hedging agreement or the making of a demand by a hedge counterparty for payment of all or any amount which would become payable in connection with the occurrence of an early termination date;
- (c) the making of any demand against any Obligor in relation to any guarantee in respect of any liabilities which are due and payable but unpaid or exercising any right to require the Group to acquire any liability (including exercising any put or call option against any member of the Group for the redemption or purchase of any liability);
- (d) the enforcement of any Security Document (as defined in the Intercreditor Deed) or any other security interest granted by any Obligor, any Additional Second Secured Borrower, the Parent or any other High Yield Note Issuer (including taking any action to crystallize any floating charge forming part of any Security Document);
- (e) the exercise of any right of set-off against any Obligor in respect of any liabilities due and payable but unpaid (excluding, for the avoidance of doubt, any payment or close-out netting under any hedging agreements or any set-off under any cash management arrangements);
- (f) the suing for, commencing or joining of any legal or arbitration proceedings against any Obligor to recover any liabilities; or
- (g) the petitioning, applying or voting for, or the taking of any steps (including the appointment of any liquidator, receiver, administrator or similar officer) which could reasonably be expected to lead to an insolvency event in relation to any Obligor,

provided that the following shall not constitute Enforcement Action:

- (i) the taking of any action falling within paragraph (f) above necessary to preserve the validity and existence of claims, including the registration of such claims before any court or governmental authority;
- (ii) to the extent entitled by law, the taking of any actions against any creditor (or any agent, trustee or receiver acting on behalf of such creditor) to challenge the basis on which any sale or disposal is to take place pursuant to powers granted to such persons under any security documentation;
- (iii) bringing legal proceedings against any person in connection with any securities violation or common law fraud or to restrain any actual or putative breach of the Finance Documents (as defined in the Intercreditor Deed) or for specific performance with no claim for damages; or
- (iv) demand being made for payment of any of the liabilities as a result of it being unlawful for any Senior Creditor, Second Secured Creditor (other than any Second Secured Proceeds Lender) or High Yield Creditor (other than any High Yield Proceeds Lender) to perform any obligation under the Finance Documents,

unless in the case of any of the actions listed above in paragraphs (i)-(iv) above, such action will result in an insolvency event.

The Intercreditor Deed also contains enforcement provisions in relation to hedge counterparties, Intra-Group Liabilities, Senior Proceeds Loans and Subordinated Liabilities.

Subordination

Upon the occurrence of an insolvency event in relation to an Obligor, claims against that Obligor:

- in respect of any Second Secured Liabilities will be subordinate in right of payment to the claims against that Obligor in respect of Senior Liabilities;
- in respect of the Subordinated High Yield Liabilities will be subordinate in right of payment to the claims against that Obligor in respect of Senior Liabilities and Second Secured Liabilities; and
- in respect of Intra-Group Liabilities and Subordinated Liabilities will be subordinate in right of payment to the claims against that Obligor in respect of Senior Liabilities, Second Secured Liabilities and Subordinated High Yield Liabilities.

Upon the occurrence of an insolvency event in relation to a High Yield Note Issuer or an Additional Second Secured Borrower claims against that High Yield Note Issuer or Additional Second Secured Borrower in respect of the Subordinated Liabilities will be subordinate in right of payment to the claims against that High Yield Note Issuer or Additional Second Secured Borrower in respect of Senior Liabilities, Second Secured Liabilities and High Yield Liabilities (as applicable).

Turnover

Except to the extent prohibited by law and subject to certain exceptions, if at any time on or before the Senior Discharge Date and the Second Secured Discharge Date, any High Yield Creditor or any High Yield Note Issuer:

- receives or recovers any payment or distribution of, or on account of or in relation to, any of the Subordinated High Yield Liabilities which is not a permitted payment under the Intercreditor Deed;
- receives or recovers any amount by way of set-off in respect of any of the Subordinated High Yield Liabilities owed to them which does not give effect to a permitted payment under the Intercreditor Deed;
- receives or recovers proceeds pursuant to any Enforcement Action in respect of the Subordinated High Yield Liabilities except in accordance with the Intercreditor Deed or receives or recovers

proceeds pursuant to any Enforcement Action in respect of the collateral for any High Yield Notes (as applicable);

- receives any payment or distribution of any kind whatsoever in relation to the purchase or acquisition of any High Yield Liabilities by any member of the Group;
- receives any distribution in cash or in kind in respect of any liability owed by IHL or the other Obligors in respect of the Subordinated High Yield Liabilities which is made as a result of the occurrence of an insolvency event of any Obligor; or
- receives or recovers any payment or distribution in respect of the High Yield Liabilities as a result of any High Yield Note Issuer receiving or recovering an amount in contravention of the Intercreditor Deed,

that High Yield Creditor or High Yield Note Issuer, as the case may be, will notify the Senior Security Agent and (following the Senior Discharge Date and prior to the Second Secured Discharge Date) each Second Secured Representative and hold that amount in a separate account on trust for (prior to the later of the Senior Discharge Date) the Senior Security Agent or (following the Senior Discharge Date prior to the Second Secured Discharge Date) each Second Secured Representative and promptly pay that amount (prior to the Senior Discharge Date) to the Senior Security Agent or (following the Senior Discharge Date prior to the Second Secured Discharge Date) a Second Secured Representative or (after deducting from the amount received or recovered the costs and expenses (if any) actually incurred by it in recovering such amount) to be held in trust by such person for application in accordance with the order of priority under the Intercreditor Deed as described below in “Application of Proceeds.” The foregoing provision does not, however, apply to any amounts received or recovered by any High Yield Notes Trustee that have been distributed by it to the holders of any High Yield Notes as applicable, if at the time it distributed such payment it had no actual knowledge that such payment was so prohibited.

The Intercreditor Deed also contains a turnover provision in relation to the Second Secured Liabilities, Intra-Group Liabilities and Subordinated Liabilities as well as certain amounts received by the Obligors generally.

Application of Proceeds

Subject to rights of creditors mandatorily preferred by law applying to companies generally, amounts received by the Senior Security Agent, a Second Secured Representative or trustee or representative under any High Yield Notes Indenture, any hedge counterparty or any cash management bank representing (i) the proceeds of enforcement of any security, (ii) recoveries under any guarantee contained in the Finance Documents and (iii) all amounts paid pursuant to the Intercreditor Deed will be applied in the following order of priority:

- in discharging any sums owing to the Senior Security Agent or any additional agent appointed by the Senior Security Agent, any High Yield Note Trustee Amounts, any Agency Amounts, any Senior Secured Note Trustee Amounts and any Second Secured Note Trustee Amounts, on a *pari passu* basis;
- in payment of all costs and expenses incurred by or on behalf of the Senior Creditors in connection with the enforcement of their security;
- in payment to the Senior Facility Agent (for itself and the Senior Lenders) to discharge the liabilities in respect of the Senior Secured Term Loans Agreement, to the Schuldschein Loan Trustee to discharge the liabilities in respect of the Schuldschein Loan, to hedging counterparties to discharge the liabilities owed to them, to cash management banks to discharge the liabilities owed to them, to the 2026 Senior Secured Notes Trustee for application towards the discharge of the liabilities under the 2026 Senior Secured Indenture, the 2026 Senior Secured Notes and related documents, to the 2025 Senior Secured Notes Trustee for application towards the discharge of the liabilities under the 2025 Senior Secured Notes Indenture, the 2025 Senior Secured Notes and related documents, to any Additional Senior Secured Notes Trustee for application towards the discharge of the liabilities under the Additional Senior Secured Notes Indenture relating thereto, the applicable Additional Senior Secured Notes and related documents and each Additional Senior Facilities Representative (for itself and the creditors under such Additional Senior Finance Documents) for application towards the discharge of the Additional Senior Lender Liabilities (as

defined in the Intercreditor Deed) owing under the Additional Senior Finance Documents, on a *pro rata* basis;

- in payment to each Second Secured Representative on behalf of the Second Secured Creditors which it represents for application towards the discharge of any Second Secured Liabilities, on a *pro rata* basis;
- in payment to the 2024 IGH Notes Trustee for application towards the discharge of the liabilities in respect of the 2024 IGH Notes Indenture and the 2024 IGH Notes and to any Additional High Yield Notes Trustee for application towards the discharge of the liabilities in respect of the applicable Additional High Yield Notes Indenture and the applicable Additional High Yield Notes, on a *pro rata* basis;
- if none of the Obligors is under any further actual or contingent liability under any Senior Finance Document, Senior Secured Note Document (as defined in the Intercreditor Deed), Second Secured Document, under any High Yield Notes Indenture and related documents, in payment to any person to whom the Senior Security Agent, Second Secured Representative or the trustee or representative under any High Yield Notes Indenture is obliged to pay in priority to any Obligor; and
- the balance, if any, in payment to the relevant Obligor.

Release of the Guarantees and the Security

The Intercreditor Deed provides that, subject to any consents required from the Majority Senior Lenders and each Senior Secured Notes Trustee and Additional Senior Secured Notes Trustee in certain circumstances being obtained, the Senior Security Agent is authorized to (i) release any security created by the security documents over the relevant asset, and (ii) (if the relevant asset comprises all of the shares in the capital of a member of the Group (as defined in the Intercreditor Deed)) to release that member of the Group and any of its direct or indirect subsidiaries from all past, present and future liabilities (both actual and contingent) and/or its obligations in its capacity as a guarantor, issuer or borrower of the whole or any part of its liabilities in respect of the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, any Senior Secured Notes, any Additional Senior Secured Notes, Second Secured Documents, any High Yield Notes and certain other liabilities and to release any security granted by that member of the Group or any of its direct or indirect subsidiaries over any asset under any security document if:

- in connection with any permitted Enforcement Action, the Senior Security Agent or any receiver or administrator sells or otherwise disposes of (or proposes to sell or otherwise dispose of) any asset under any security document; or
- following a default under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, any Additional Senior Finance Document, the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture or any Additional Senior Secured Notes Indenture (collectively, such indentures, the “**Senior Secured Notes Indentures**”), a member of the Group sells or otherwise disposes of (or proposes to sell or otherwise dispose of) any asset at the request or direction of the Senior Security Agent.

Notwithstanding the preceding paragraph, in the case of any release of the guarantees or security for the Second Secured Liabilities or for any High Yield Notes, the Second Secured Creditors and the High Yield Creditors will only be obliged to release and authorize the release set out above in respect of any Obligor or other person which has granted security or provided a guarantee to the Second Secured Creditors or the High Yield Creditors:

- in the case of the Second Secured Liabilities and any security in respect thereof, if the Majority Second Secured Creditors (as defined in the Intercreditor Deed) have approved the release; or
- in the case of guarantees and security for the 2024 IGH Notes and the 2024 IGH Notes Indenture or any Additional High Yield Notes and Additional High Yield Notes Indenture, if the trustee or other representative under each High Yield Notes Indenture confirms to the Senior Security Agent that the holders of the 2024 IGH Notes or any Additional High Yield Notes which it represents have approved the release; or

- if the shares or assets of an Obligor (or the shares of any direct or indirect holding company of such Obligor) are sold or otherwise disposed of pursuant to Enforcement Action taken by the Senior Security Agent (or any receiver or administrator) or at the request or direction of the Senior Security Agent, and the sale or disposal is completed in accordance with applicable law and for a consideration all or substantially all of which is in the form of cash or certain cash equivalents and:
 - (1) in the case of a sale or disposal of shares of an Obligor (or the shares of any direct or indirect holding company of such Obligor) (but only to the extent that any guarantees and security for the 2024 IGH Notes and the 2024 IGH Notes Indenture or any Additional High Yield Notes or Additional High Yield Notes Indenture are to be released), concurrently with the completion of such sale or disposal, the indebtedness of the relevant members of the Group being disposed of to (x) the Senior Creditors, (y) the Second Secured Creditors and (z) the lenders of all Subordinated Debt (as defined in the Intercreditor Deed) and Public Debt (as defined in the 2024 IGH Notes Indenture) that is Pari Passu Debt (as defined in the Intercreditor Deed) are discharged or released (and not assumed by the relevant purchaser or any affiliate thereof); *provided, however*, that performance bonds and similar instruments will not be required to be so discharged or released; and
 - (2) if applicable, in the case of a sale or disposal of assets other than shares in an Obligor as provided above, concurrently with the completion of such sale or disposal the prior ranking security in favor of the Senior Creditors over such assets is released,

and, in the case of paragraphs (1) and (2) above, either (x) the sale or disposal is made pursuant to a Public Auction (as defined below) or (y) an internationally recognized investment bank or an internationally recognized accounting firm selected by the Senior Security Agent has delivered in respect of the sale or disposal an opinion to (in the case of a sale by or at the request of the Senior Security Agent (or any receiver or administrator)) the trustee or representative under any High Yield Notes Indenture and each Second Secured Representative that the amount received in connection with such sale is fair from a financial point of view taking into account all relevant circumstances including the method of enforcement; *provided* that the liability of such investment bank or accounting firm in giving such opinion may be limited to the amount of its fees in respect of such engagement.

A “**Public Auction**” is defined in the Intercreditor Deed to mean an auction in which more than one bidder participates or is invited to participate conducted with the advice of an internationally recognized investment bank and in which if the sale is undertaken by or at the request of the Senior Security Agent (or any receiver or administrator), pursuant to an enforcement requested by (a) the Instructing Group, in which case the Second Secured Creditors and the High Yield Creditors will have a right to participate in such auction and (b) the Second Secured Creditors, in which case the High Yield Creditors will have a right to participate in such auction.

The Intercreditor Deed also provides that, subject to any consents required from the Majority High Yield Creditors being obtained, the Senior Security Agent, any High Yield Notes Trustee and the applicable Second Secured Representative are authorized to release any security created by the security documents over (i) any assets disposed of in a manner permitted pursuant to the terms of the Senior Secured Term Loans, the Schuldschein Loan, any Additional Senior Secured Term Loans, the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, any Additional Senior Secured Notes Indenture and the Second Secured Documents; or (ii) any receivables disposed of pursuant to the Securitization Program in a manner permitted pursuant to the terms of the Senior Secured Term Loans, the Schuldschein Loan, any Additional Senior Secured Term Loans, the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, any Additional Senior Secured Notes Indenture and the Second Secured Documents with effect from whichever is the earlier of (1) the date such receivable is disposed of or (2) the date such receivable is offered for disposal or, if not in existence when offered for disposal, the date it subsequently comes into existence.

The Intercreditor Deed further provides that, if it is necessary to do so in order to give effect to certain provisions of the Intercreditor Deed providing that in connection with any refinancing, restructuring, replacement, extension, supplement, increase or incurrence of additional Senior Liabilities and any Second Secured Liabilities such indebtedness shall be secured in priority to the Subordinated High Yield Liabilities, each High Yield Notes Trustee or other representative shall release any security interest which has been granted to it *provided* that such release occurs on the date of such refinancing, restructuring, replacement, extension,

supplement, increase or incurrence and a new security interest is granted to the High Yield Notes Trustee or other representative immediately upon the grant of security interests in respect of such refinancing, restructuring, replacement, extension, supplement, increase or incurrence.

Option to Purchase Debt under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement and the Senior Secured Notes Indentures

If the Senior Creditors under the Senior Secured Term Loans Agreement, the Schuldschein Loan Agreement, any Senior Secured Notes Indenture, any Additional Senior Secured Notes Indenture or any Additional Senior Finance Document have taken any Enforcement Action, any High Yield Notes Trustee may, at the direction of the requisite percentage of the holders of the 2024 IGH Notes under the 2024 IGH Notes Indenture or the requisite percentage of the holders of any Additional High Yield Notes under any Additional High Yield Notes Indenture, as applicable, within 60 days after commencement of that Enforcement Action, on giving not less than 14 days' written notice to the Senior Facility Agent, the Schuldschein Loan Trustee, each Additional Senior Facilities Representative, the 2026 Senior Secured Notes Trustee, the 2025 Senior Secured Notes Trustee, any Additional Senior Secured Notes Trustee and each Second Secured Representative, and subject to satisfying certain conditions, purchase all but not part of the debt under the Senior Secured Term Loans, the Schuldschein Loan, any Additional Senior Secured Lender Liabilities (as defined in the Intercreditor Deed), the 2026 Senior Secured Notes Indenture, the 2025 Senior Secured Notes Indenture, any Additional Senior Secured Notes Indenture, hedging agreements, cash management arrangements and Second Secured Documents (i) in the case of the Senior Secured Term Loans, the Schuldschein Loan, and any Additional Senior Secured Lender Liabilities (as defined in the Intercreditor Deed), at a price equal to the principal amount of such debt and accrued and unpaid interest and fees and expenses, (ii) in the case of any Senior Secured Notes or Additional Senior Secured Notes, at a price equal to the principal amount of such debt and accrued and unpaid interest, any prepayment fees and other fees and expenses and (iii) in the case of any Second Secured Documents, at a price equal to the principal amount of such debt and accrued and unpaid interest, any prepayment fees and other fees and expenses. The Intercreditor Deed also provides for the price to be paid in relation to hedging agreements and cash management arrangements. Upon such purchase, the purchasers will assume the rights and obligations of the lenders under the Senior Secured Term Loans, the Schuldschein Loan and any Additional Senior Lender Liabilities, including hedging arrangements, and the rights and obligations of the holders of any Senior Secured Notes, any Additional Senior Secured Notes and the rights and obligations of the creditors under any Second Secured Documents.

Amendment

The terms of the Intercreditor Deed may only be amended or waived with the written agreement of each of the Senior Facility Agent, each Additional Senior Facilities Representative, any High Yield Notes Trustee, any Second Secured Representative, the Schuldschein Loan Trustee, the 2026 Senior Secured Notes Trustee, the 2025 Senior Secured Notes Trustee, any Additional Senior Secured Notes Trustee and IHL unless (i) any amendments are made to cure defects, resolve ambiguities or reflect changes of a minor, technical or administrative nature, which may be made by the Senior Security Agent and IHL, (ii) any amendments are made to meet the requirements of any person proposing to act as a senior secured note trustee or high yield note trustee which are customary for persons acting in such capacity, which amendments may be made by the Senior Security Agent and IHL, (iii) any amendments which only affect the rights and obligations of one party or class of parties and are not adverse to the rights of the other parties or class of parties, which may be made by only IHL and the party or class of parties affected thereby, or (iv) any amendments are made to give effect to the appointment of an Additional Senior Facilities Representative in respect of the Additional Senior Finance Parties or a Second Secured Representative in respect of the Second Secured Creditors, which amendments may be made by the Senior Security Agent and IHL. Subject to (i) and (ii) in the previous sentence, no amendment or waiver of the Intercreditor Deed may impose new or additional obligations on any party to the Intercreditor Deed or affect the rights or obligations of the Senior Facility Agent, the Schuldschein Loan Trustee, the 2026 Senior Secured Notes Trustee, the 2025 Senior Secured Notes Trustee, any Additional Senior Secured Notes Trustee, the Senior Security Agent or the trustee or representative under the 2024 IGH Notes Indenture or any Additional High Yield Notes Trustee, or certain other persons in each case without their prior written consent.

The Senior Security Agent may amend the terms of, waive any of the requirements of, or grant consents under, any of the Senior Security Documents (as defined in the Intercreditor Deed) acting on the instructions of the Senior Facility Agent and (where such consent is required under any Additional Senior Finance Document) of each relevant Additional Senior Facilities Representative and (where such consent is required under any Senior Secured Notes Indenture, Additional Senior Secured Notes Indenture or related documents) of the applicable Senior Secured Notes Trustee or Additional Senior Secured Notes Trustee. Any

such amendment, waiver or consent will be deemed to be an amendment, waiver or consent of any equivalent Security Document (as defined in the Intercreditor Deed) granted in favor of the Second Secured Creditors or the 2024 IGH Notes Trustee and the holders of the 2024 IGH Notes or any Additional High Yield Notes Trustee and the holders of any Additional High Yield Notes but only to the same extent and to no greater extent than the amendment, waiver or consent in relation to the relevant Senior Security Document. Any such amendment, waiver or consent will also be binding on the hedge counterparties save to the extent that in respect of such amendment, waiver or consent the hedge counterparties are treated in a manner which is different to the other Senior Creditors in which event the consent of the hedge counterparties shall also be required. No such amendment, waiver or consent will (without prejudice to any other provision of the Intercreditor Deed) release any security granted to the Second Secured Creditors or the 2024 IGH Notes Trustee or any Additional High Yield Notes Trustee or holders of the 2024 IGH Notes or the holders of any Additional High Yield Notes except as permitted under the Second Secured Documents or the 2024 IGH Notes Indenture or an Additional High Yield Notes Indenture, as applicable.

Notwithstanding the above, any High Yield Notes Trustee, each Second Secured Representative, any Senior Secured Notes Trustee, the Schuldschein Loan Trustee, any Additional Senior Secured Notes Trustee, the Senior Facility Agent, each Additional Senior Facilities Representative and the Senior Security Agent are authorized to enter into such agreement or agreements with, among others, the Obligors and each High Yield Notes Issuer, whether by way of supplement, amendment or restatement of the Intercreditor Deed or by a separate deed, as may be necessary to give effect to the provisions under the Intercreditor Deed relating to, among others, a permitted refinancing of the Senior Liabilities, the Second Secured Liabilities or the liabilities in respect of the 2024 IGH Notes or any other High Yield Notes.

Unless expressly stated otherwise in the Intercreditor Deed, the provisions of the Intercreditor Deed override anything in any of the finance documents to the contrary.

The Intercreditor Deed is governed by English law.

GLOSSARY OF SELECTED TERMS

Term	Definition
Acetone.....	Byproduct of the production of phenol. Is used in the production of methylmethacrylate, polymethylmethacrylate, acrylate and Bisphenol A and acetone-based solvents.
Acetonitrile	Co-produced in the manufacture of acrylonitrile and is largely used in solvents.
Acrylic acid	Produced from propylene and used in manufacturing absorbent polymers, coatings and adhesives/sealants.
Acrylonitrile	A commodity used in a wide variety of consumer applications. Used in the production of acrylic fiber, acrylonitrile butadiene styrene and styrene acrylonitrile. Is manufactured from propylene, ammonia and air with the use of a catalyst.
Acrylonitrile-butadiene styrene (ABS).....	A tough thermoplastic that has a variety of consumer appliance and automotive component uses. Made from acrylonitrile, butadiene and styrene.
Additive	An ingredient added to a chemical reaction, usually in polymerization reactions, to impart additional performance properties on the resulting product.
Alpha olefins (AO)	See “Linear alpha olefins” and “Poly alpha olefins.”
Ammonia	Used in the manufacture of acrylonitrile, although its largest end use is in the manufacture of fertilizers. Made from nitrogen and hydrogen with the use of a catalyst.
Aromatics	Hydrocarbons that are in a ring formation instead of a linear formation. The major products comprising this group are: benzene, toluene, mixed xylenes, ortho-xylene and para-xylene.
Barrel or bbl.....	Barrel of crude oil, 159 liters by volume.
Benzene	A building block for styrene and is also used to make cumene and nylon. Mainly produced from refinery processes or as a co-product of steam cracker operations.
Bisphenol A	An intermediate product produced from acetone and phenol used to produce polycarbonate and epoxy-resins.
BTX Extraction	The separation of benzene, toluene and xylenes by fractionation.
Butadiene	A gas, one of the co-products of the steam cracking process and is used primarily in the production of polymers, principally synthetic rubbers, such as styrene butadiene rubber, which is used to manufacture tires and other rubber products.
Catalyst.....	An ingredient added to facilitate a chemical reaction, but which does not itself get consumed during the reaction process.
Comonomer	An additional monomer used in a polymerization reaction to offer additional properties to a polymer.
Copolymer	A polymer created by the polymerization of one or more additional monomers (comonomers) to offer additional properties to the resulting polymer.
Cracker	See “Olefins cracker.”
Cracking	The conversion of large hydrocarbon molecules into smaller ones. Carried out either at high temperatures (thermal cracking), or with the aid of a catalyst and high pressure (catalytic cracking and hydrocracking). The cracking process enables greater quantities of saturated hydrocarbons suitable for gasoline and other light hydrocarbon fractions to be recovered from crude oil.
Cumene.....	Produced from benzene and propylene and is used as a feedstock for producing phenol/acetone, which have a large number of uses in the manufacture of plastics and resins.
Ethane	A colourless, odourless gas which is a byproduct of petroleum refining. Primarily used as a petrochemical feedstock for ethylene production.
Ethanolamine	An ethylene oxide derivative. Major applications are herbicides, surfactants (used in personal care products and detergent formulations), cement additives, textile chemicals and pigments.
Ethylbenzene	An intermediate made from benzene and ethylene and used to make styrene. Virtually all worldwide ethylbenzene production is consumed in the manufacture of styrene.

Ethylene	A flammable gas obtained in a process called steam cracking. Itself has no consumer applications, but is the basic feedstock for a large number of industrial uses, including the manufacture of polyethylene. Is a key building block for polyethylene, polystyrene, ethylene oxide and other derivatives.
Ethylene glycol (EG)	An industrial chemical primarily used in the manufacture of polyesters and antifreeze/coolants. Produced from ethylene oxide.
Ethylene oxide (EO)	A commodity monomer used as a building block for the manufacture of a wide range of products and intermediates in the chemical industry. Mainly used to produce ethylene glycol and industrial detergents. The products derived from ethylene oxide have many familiar applications and coolants for auto engines, polyester fibers and film. Manufactured from ethylene and oxygen.
Ethylene propylene diene monomer	Made from a combination of ethylene, propylene and another monomer containing two double bonds. Key end use applications after further processing and reaction, are for roofing materials and automotive seals.
Ethylene norbornene (ENB) monomer	Made by reacting butadiene with dicyclopentadiene and is used as a termonomer in ethylene propylene diene monomer rubber.
Feedstocks	Crude oil and other hydrocarbons used as basic materials in a refining or manufacturing process.
Forties blend	Means the blend of crude oil supplied to Cruden Bay, Aberdeenshire, via the Forties Pipeline System.
Forties Pipeline System	The pipeline that carries crude oil from a variety of oil fields in the North Sea to the mainland.
Fractionator	Splits gas into its components ethane, propane, butane and other natural gas liquids.
Gas	Includes methane, ethane, butane and propane.
Glycol ethers	Used as solvents in paints, inks and cleaning fluids and are derivatives of ethylene oxide.
High-density polyethylene	A type of polyethylene and is a relatively tough thermoplastic. Most common household use is container plastics. Also commonly used for molding, pipe and thin film applications.
Homopolymers	Polymers that are created by the polymerization of a single monomer.
Hydrocarbons	All compounds that consist of hydrogen and carbon. These include crude oil, natural gas, gas, olefins and their derivatives.
Hydrogen cyanide	Manufactured as a co-product of acrylonitrile. Is an extremely hazardous gas used mainly to produce polymers, coatings and nylon, and for chemicals used in gold extraction.
кта	Kilotonnes per annum.
Linear alpha olefins (LAO)	Hydrocarbons in a straight chain formation which have physical characteristics and commercial uses that vary according to the length of the hydrocarbon chain. Are co-monomers for certain types of polyethylene. They also have applications as surfactant intermediates, base oil for synthetic lubricants and drilling fluids. They are made from ethylene.
Linear low-density polyethylene ...	A type of polyethylene and has basic properties similar to low-density polyethylene. Low-density polyethylene and linear low-density polyethylene are to a certain extent substitutes. The most significant end use for linear low-density polyethylene is film.
Liquefied petroleum gas (LPG)	A mixture of gases, usually propane and butane, used as fuel in heating appliances and vehicles and also as a petrochemical feedstock.
Low-density polyethylene (LDPE)	The first type of polyethylene invented. Its most common household use is in plastic bags.
Methylmethacrylate	Produced from acetone and is used to manufacture polymethylmethacrylate resins.
Monomer	Feedstock material for the manufacture of polymers and derivative products.
Mothballed	Describes a facility that is not used for production but is maintained so that production may be resumed quickly.
Naphtha	A refinery product that is used as a gasoline component, but also serves as feedstock for petrochemical plants.
Natural gas liquids	Generally comprise a mixture of ethane, propane, butanes and smaller amounts of other lighter hydrocarbons.
Nitriles	Used to describe acrylonitrile, its co-products and other products produced from ammonia feedstock.

NPS.....	The NATO pipeline system (NPS) is 11,500 km of pipeline linking 13 NATO countries to enable delivery of fuel and lubricants to military storage locations.
Olefins	Including ethylene and propylene, are the key building blocks of the petrochemical industry and produce a large range of derivative products.
Olefins cracker.....	Breaks down naphtha or other gas feedstocks into olefins, principally ethylene and propylene.
Organoleptic products.....	Impart no taste or odor to the contents of the container and include caps and closures made from polyethylene.
Oxo-alcohols.....	A feedstock for intermediates which are used in many soft plastic products and solvent applications. They are largely produced from propylene feedstock.
Ppm.....	Parts per million.
Phenol	Produced from cumene, and is used in the production of Bisphenol A, as well as phenolic resins and caprolactam.
Poly alpha olefins (PAO).....	Made by polymerizing, or merging, several linear alpha olefins together and are used in a large number of automotive and industrial applications (mainly as synthetic lubricants).
Polycarbonate	An engineering thermoplastic polymer which, due to its superior optical qualities, structural strength and weight, has a wide range of uses, including CDs and DVDs, optic-fibers, optical lenses, structural parts in cars and trucks and housings for electrical household appliances and office equipment.
Polyethylene	The world's most used thermoplastic (including high-density polyethylene, low-density polyethylene and linear low-density polyethylene). Manufactured by the polymerization of ethylene and co- monomers. Used primarily to produce films for packaging, agricultural applications, molded products, pipes and coatings.
Polyethylene terephthalate (PET) ..	Made by the combination of ethylene glycol and terephthalic acid. Typical end uses include films for packaging and fibers.
Polyisobutylene	A synthetic polymer available in a wide variety of viscosities for use in a broad range of industrial applications, including lubricants, sealants, cling film, cables and adhesives.
Polymer.....	A chemical compound usually made up of a large number of identical components linked together into long molecular chains.
Polymethylmethacrylate resins	Used in a wide range of architectural and industrial applications, ranging from point of sale retail displays to glazing and decorative light panels, and compounds for molding and extrusion.
Polypropylene.....	The world's second most widely used thermoplastic after polyethylene. It is manufactured by the polymerization of propylene. It is used mainly for molding, filaments, fibers and films and is the most significant thermoplastic material used in molded containers and automotive applications.
Polyvinyl chloride (PVC)	The world's third most widely used thermoplastic after polyethylene and polypropylene. It is produced by the polymerization of the vinyl chloride monomer. It is used mainly in the construction industry in the form of pipes and insulation on electric cables.
Propane.....	A gaseous hydrocarbon in its natural state but can be easily liquefied. Its major end uses are as a fuel and as a feedstock for petrochemicals.
Propylene.....	A flammable gas which is largely derived either as a co-product of the refinery fluid catalytic cracker process used to make gasoline or as a co-product of the steam cracking process used to make ethylene. Has virtually no independent end use, but is an important input for a significant number of industrial products, and is the main feedstock used to make polypropylene and acrylonitrile.
Propylene glycols	An industrial chemical, mainly used to produce polyester, paints and coatings, airplane de-icers, antifreeze and industrial coolants, made from propylene oxide.
Propylene oxide	Used in manufacture of polyurethane foams and to make propylene glycols. Primarily made from propylene feedstock.
Pygas	A by-product of olefins production from steam crackers and is used by refineries as a liquid gasoline blending component.

Solvents	Used to dissolve solids and keep them in liquid form.
SPMR pipeline.....	The Société du Pipeline Méditerranée Rhône pipeline system in France.
SPSE pipeline	La Société du Pipeline Sud-Européen: south European pipeline system connecting refineries and petrochemicals facilities along the route from Fos to Karlsruhe.
Spot market.....	A term used to describe the international trade in one-off cargoes or shipments of commodities, such as crude oil, in which prices closely follow demand and availability.
Thermoplastic	A plastic which softens when heated and hardens again when cooled. Includes polyethylene, polypropylene and polystyrene.
Turnaround	Temporary shutdown of a refinery or petrochemical production facility for required maintenance. Can be scheduled (planned, routine maintenance, inspections and tests to comply with industry regulations) or unscheduled (in response to an unexpected outage or plant failure).

INDEX TO THE FINANCIAL STATEMENTS

The following information is from the full IFRS statutory financial statements of INEOS Group Holdings S.A. for the year ended December 31, 2019, dated March 21, 2020.

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MANAGEMENT REPORT FOR THE YEAR ENDED 31 DECEMBER 2019

The management present their report and the audited consolidated financial statements of the Group for the year ended 31 December 2019.

Results for the year

The results of the Group are set out in the consolidated income statement on page F-7 which shows a profit from continuing operations before taxation for the financial year of €939.6 million (2018: profit of €1,474.2 million).

Review of business developments

Our chemicals businesses produce olefins and related products, a broad range of polymers and a variety of other speciality chemical products. Our products serve a broad and diverse range of end markets, including packaging, construction, automotive, durables, agrochemicals and pharmaceuticals. We operate a total of 32 manufacturing sites across the world. We operate our business through three segments: O&P North America, O&P Europe and Chemical Intermediates.

The solid underlying performance of the business has continued throughout 2019. North American markets have continued to show a good demand trend, taking full benefit from their current feedstock advantage. Nevertheless, the recent significant capacity additions in the US have adversely impacted the supply demand balance in the short term. In Europe demand has been solid, with the impact of a number of planned competitor plant turnarounds during parts of the year creating tight market conditions. The industry sentiment in Asia has made some modest improvement in the year. The performance of the Group has followed this overall demand trend.

O&P North America has continued to benefit from its flexibility to be able to utilise cheaper gas feedstock to maintain healthy margins. Both ethane and propane have continued to be advantaged feedstocks during the year. The US cracker business environment continued to be solid with high operating rates throughout the year. The increased supply from new industry capacity additions coming online during the period has led to some reductions in olefins margins. Overall polymer demand was generally stable, but increased supply in the region has led to some margin erosion. The pipe business continued to perform well, with high levels of demand.

O&P Europe had another solid performance in 2019. Demand for olefins in the year was solid in a tight market, with a high level of scheduled competitor turnarounds during parts of the year constraining supply. European polymer demand was relatively firm in a balanced market with good volumes. Margins saw some deterioration in the second half of the year as markets lengthened with increased levels of imports.

Chemical Intermediates' performance was lower in 2019, which was mainly due to the adverse impact of the Nitriles business in the year. The overall demand trend in the Oligomers business was strong in most sectors, with robust demand in the polyethylene co-monomer segment. The Oxide business had a solid performance for the year, with generally flat demand. Margins were adversely impacted by weak glycol margins due to subdued Asian markets. The Phenol business performance was balanced, with improved phenol demand offset by some length in acetone. The Nitriles business was adversely impacted by production issues at the Green Lake and Seal Sands facilities which significantly impacted volumes, together with a weaker ABS and acrylic fibre market environment.

The decision to close the Seal Sands acrylonitrile operation was made in December 2019. The poor operating performance of the site and uneconomic capital expenditure requirements to meet safety and environmental obligations led to the decision to close the facility. Exceptional restructuring costs of €35 million were provided, which related to severance and associated expenses, together with decommissioning and demolition costs. In addition, there was an impairment of tangible fixed assets of €33 million in respect of the operations to be closed. The Group also incurred an exceptional charge of €13 million during the year in relation to a settlement of an intellectual property dispute in the former Technologies business.

Cash capital expenditure for 2019 was €1,380 million, as the Group continued with its asset investment strategy. The main capital expenditures in the year were on the co-generation units at Chocolate Bayou and Koln, together with a number of expansion projects including the Olefins 2 debottleneck in Chocolate Bayou

MANAGEMENT REPORT FOR THE YEAR ENDED 31 DECEMBER 2019 (continued)

for O&P North America, the new Linear Alpha Olefins (LAO) and Poly Alpha Olefins (PAO) plants in Chocolate Bayou for the Oligomers business and a new alkox plant and Ethylene Oxide storage facilities in Antwerp for the Oxide business. The remaining capital expenditure related primarily to sustenance expenditure.

In March 2019 the Group acquired RWE Generation Belgium NV, the owner of the co-generation unit on the Antwerp site of the Oxide business, for a cash consideration of €70 million. In April 2019 the Group purchased a number of oil and gas wells located in the Giddings Fields in Texas, USA for a consideration of €27 million.

In March 2019 the Group disposed of its investment in PQ Corporation (held by Ineos Investments Partnership) for net proceeds of €260 million.

In April 2019 the Group issued €770 million Senior Secured Notes 2026 to refinance the €770 million Senior Secured Notes due 2023.

The Group diversified its funding sources during 2019, with three new finance facilities being set up. The Schuldschein Facility (€141 million) was focussed on tapping in to the Asian term loan market for the Group; the Rafnes facility (€250 million) was put in place to support the business in Norway, and the Inventory Monetisation Facility (€189 million) was set up to partially finance the extended supply chain of the O&P Europe business.

The new accounting standard IFRS 16 'Leases' is effective for accounting periods beginning on or after January 1, 2019. In summary, the new standard requires transactions previously treated as operating leases to be brought on to the balance sheet and included as a 'Right of Use' asset and a corresponding lease liability. The Group has therefore implemented the changes required to comply with the new standard in 2019 (see Note 1 to the consolidated financial statements).

Markets in North America are expected to remain solid, with the continuing benefit of its current feedstock advantage. A number of scheduled expansions of polymer assets by competitors in North America are expected to have a moderating effect on margins in the region during 2020. Market conditions in Europe are expected to remain reasonable, with solid underlying demand in spite of increased competition from imports. Petrochemical markets in Asia are expected to be subdued as uncertainties over tariffs impact demand. The Group expects to see an improved performance in the Nitriles business with the Green Lake facility now back in operation, together with a step up in the Oligomers business with increased volumes from the new LAO and PAO facilities that are expected to come on line during 2020. The Group will continue to pursue options to exploit shale gas in the U.S. as well as focussing on continued investment in expanding existing facilities, including a new cumene plant in Marl, Germany for the Phenol business and a new alkox unit in Antwerp, Belgium for the Oxide business.

Principal risks and uncertainties

The management of the business and the execution of the Group's strategy are subject to a number of risks.

The key business risks affecting the Group are set out below:

- The petrochemical industry is cyclical — changing market demands and prices may negatively affect the Group's operating margins and impair its cash flow which, in turn, could affect its ability to make payments on its debt or to make further investments in the business.
- Raw materials and suppliers — if the Group is unable to pass on increases in raw material prices, or to retain or replace its key suppliers, its results of operations may be negatively affected.
- International operations and currency fluctuations — the Group is exposed to currency fluctuation risks as well as to economic downturns and local business risks in several different countries that could adversely affect its profitability.
- Competition — significant competition in the Group's industries, whether through efforts of new and current competitors or through consolidation of existing customers, may adversely affect its competitive position, sales and overall operations.
- Inability to maximise utilisation of assets — the Group may be adversely affected if it is unable to implement its strategy to maximise utilisation of assets.

MANAGEMENT REPORT FOR THE YEAR ENDED 31 DECEMBER 2019 (continued)

- Synergies — the Group may not realize anticipated revenue and cost synergies, benefit from anticipated business opportunities or experience anticipated growth from any of its acquisitions.
- Substantial debt — the Group's substantial debt could adversely affect its financial position and prevent it from fulfilling its debt obligations.
- Brexit - The withdrawal agreement under which the United Kingdom will leave the European Union was ratified on 31 January 2020. This has started a transition period until the end of December 2020. The Group has limited activities in the United Kingdom so does not expect a significant financial impact on its business from Brexit.
- COVID-19 coronavirus - The Group is closely monitoring the evolution of the COVID-19 coronavirus and is following the World Health Organisation travel advice. With regards to business impact, the effect the virus will have on the global economy and the chemicals industry is difficult to assess at this point in time, although the Group is constantly evaluating the situation and monitoring any potential effects on production and deliveries.

Financial risk management

The Group's operations expose it to a variety of financial risks that include the effects of changes in price risk, credit risk, liquidity risk and interest rate risk. The Group has in place a risk management programme that seeks to limit the adverse effects on the financial performance of the Group where appropriate. The Group is exposed to commodity price risk as a result of its operations and seeks to mitigate this risk through various purchasing strategies. The Group manages its credit exposures with a set of policies for ongoing credit checks on potential and current customers or counterparties. See Note 25 of the financial statements for information on financial instruments, interest risk, liquidity risk and foreign currency risk.

Key performance indicators ("KPI")

The main KPI of the business is earnings before interest, taxation, depreciation and amortisation and exceptional items ("Segment EBITDA"). Management closely monitors segment EBITDA compared to budget and prior year. Details of actual and comparative segment EBITDA results are provided in Note 2.

Research and development

The Group's research and development team develops new applications for its higher margin and less cyclical speciality chemicals, provides support to the Group's customers and seeks to improve the efficiency of the Group's manufacturing processes. In addition, the research and development team is also investigating alternative catalyst systems in order to reduce variable costs. The research and development team also leads the Group's efforts with respect to the development and capacity expansions of the plants and maintaining and improving safety and environmental standards. The Group spent approximately €40.0 million (2018: €29.8 million) on research and development (including process technology development) during the year.

On behalf of the Board

Peter Huyck

Director

20 March 2020

To the Shareholders of
Ineos Group Holdings S.A.
58, rue Charles Martel
L-2134 Luxembourg

REPORT OF THE REVISEUR D'ENTREPRISES AGREE

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of Ineos Group Holdings S.A. and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as at 31 December 2019 and the consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements give a true and fair view of the consolidated financial position of the Group as at 31 December 2019 and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union.

Basis for Opinion

We conducted our audit in accordance with the Law of 23 July 2016 on the audit profession (Law of 23 July 2016) and with International Standards on Auditing (ISAs) as adopted for Luxembourg by the "Commission de Surveillance du Secteur Financier" (CSSF). Our responsibilities under the Law of 23 July 2016 and ISAs are further described in the "Responsibilities of the "Réviseur d'Entreprises Agréé" for the Audit of the Consolidated Financial Statements" section of our report. We are also independent of the Group in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants (IESBA Code) as adopted for Luxembourg by the CSSF together with the ethical requirements that are relevant to our audit of the consolidated financial statements, and have fulfilled our other ethical responsibilities under those ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other information

The Board of Directors is responsible for the other information. The other information comprises the information stated in the consolidated annual report including the management report but does not include the consolidated financial statements and our report of the "Réviseur d'Entreprises Agréé" thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report this fact. We have nothing to report in this regard.

Responsibilities of the Board of Directors for the Consolidated Financial Statements

The Board of Directors is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with IFRSs as adopted by the European Union, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Responsibilities of the “Réviseur d’Entreprises Agréé” for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue a report of the “Réviseur d’Entreprises Agréé” that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Law of 23 July 2016 and with ISAs as adopted for Luxembourg by the CSSF will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with the Law of 23 July 2016 and with ISAs as adopted for Luxembourg by the CSSF, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Board of Directors.

- Conclude on the appropriateness of Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our report of the "Réviseur d'Entreprises Agréé" to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our report of the "Réviseur d'Entreprises Agréé". However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities and business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Board of Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit. We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

Report on Other Legal and Regulatory Requirements

The consolidated management report is consistent with the consolidated financial statements and has been prepared in accordance with applicable legal requirements.

Other Matter

The financial statements of the Group for the year ended 31 December 2017 and 31 December 2018 were audited by another auditor who expressed an unmodified opinion on those statements on 22 March 2018 and 21 March 2019, respectively.

For Deloitte Audit, *Cabinet de Révision Agréé*

Ludovic Mosca, *Réviseur d'Entreprises Agréé*
Partner

21 March 2020

INEOS Group Holdings S.A.

CONSOLIDATED INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2019

	Note	2019	2018	2017
€m				
Revenue	2	13,705.0	16,091.5	15,210.4
Total cost of sales.....		(11,774.4)	(13,665.8)	(12,524.2)
Gross profit		1,930.6	2,425.7	2,686.2
Distribution costs.....		(229.7)	(215.0)	(206.5)
Administrative expenses before exceptional items.....		(441.0)	(392.1)	(418.6)
Exceptional administrative expenses.....	4	(48.1)	-	-
Total administrative expenses.....		(489.1)	(392.1)	(418.6)
Total expenses.....		(718.8)	(607.1)	(625.1)
Operating profit	5	1,211.8	1,818.6	2,061.1
Share of profit/(loss) of associates and joint ventures using the equity accounting method.....	12a	67.0	(66.6)	143.5
Profit on disposal of investments.....	13	2.6	-	-
Profit on disposal of fixed assets.....		-	-	2.6
Profit before net finance costs		1,281.4	1,752.0	2,207.2
Total finance income.....	8	91.0	117.3	491.9
Finance costs before exceptional item.....	8	(421.1)	(395.1)	(355.2)
Exceptional finance cost.....	4	(11.7)	-	(44.1)
Total finance costs.....		(432.8)	(395.1)	(399.3)
Net finance (costs)/income.....		(341.8)	(277.8)	92.6
Profit before tax		939.6	1,474.2	2,299.8
Tax charge.....	9	(216.3)	(278.9)	(301.5)
Profit for the year		723.3	1,195.3	1,998.3

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

INEOS Group Holdings S.A.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2019

	Note	2019	2018	2017
		€m		
Profit for the year		723.3	1,195.3	1,998.3
Other comprehensive (expense)/income:				
Items that will not be recycled to profit or loss:				
Remeasurements of post employment benefit obligations net of tax.....	9	(132.3)	(22.7)	82.3
		(132.3)	(22.7)	82.3
Items that may subsequently be recycled to profit or loss:				
Foreign exchange translation differences		(1.9)	(23.3)	84.5
Net gain/(loss) on hedge of net investment in foreign operations net of tax	9, 25.e	88.0	271.3	(637.5)
		86.1	248.0	(553.0)
Other comprehensive (expense)/income for the year net of tax		(46.2)	225.3	(470.7)
Total comprehensive income for the year		677.1	1,420.6	1,527.6

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

INEOS Group Holdings S.A.

CONSOLIDATED BALANCE SHEET AS AT 31 DECEMBER 2019

	Note	2019	2018	2017
Non-current assets			€m	
Property, plant and equipment.....	10	6,964.8	5,046.3	4,255.4
Intangible assets	11	799.0	744.8	731.6
Investments in equity-accounted investees.....	12.a	371.4	302.0	351.1
Financial assets at fair value through profit or loss	13	-	251.2	-
Other investments.....	13	-	-	238.5
Financial assets at fair value through other comprehensive income.....	14	28.3	28.3	-
Other financial assets	14	-	-	28.3
Employee benefits	21	48.5	45.3	-
Trade and other receivables.....	18	742.4	729.7	957.4
Deferred tax assets	16	184.8	201.6	160.2
		<u>9,139.2</u>	<u>7,349.2</u>	<u>6,722.5</u>
Current assets				
Inventories.....	17	1,227.0	1,407.7	1,246.5
Trade and other receivables.....	18	1,544.9	1,748.2	1,712.9
Derivative financial instruments.....	15	15.3	10.1	-
Cash and cash equivalents.....	28	982.9	2,071.3	1,366.3
		<u>3,770.1</u>	<u>5,237.3</u>	<u>4,325.7</u>
Total assets.....		<u>12,909.3</u>	<u>12,586.5</u>	<u>11,048.2</u>
Equity attributable to owners of the parent				
Share capital.....	23	0.9	0.9	0.9
Share premium		585.6	779.4	779.4
Other reserves		(2,004.1)	(1,957.9)	(2,183.2)
Retained earnings.....		2,945.6	4,095.1	3,099.7
Total equity.....		<u>1,528.0</u>	<u>2,917.5</u>	<u>1,696.8</u>
Non-current liabilities				
Interest-bearing loans and borrowings	19	6,604.8	6,241.5	6,094.9
Lease liabilities	26	864.4	-	-
Trade and other payables.....	20	79.7	112.1	120.1
Employee benefits	21	984.2	789.8	701.0
Provisions.....	22	46.5	27.6	28.8
Deferred tax liabilities.....	16	291.2	206.4	202.3
Derivative financial instruments.....	15	-	0.4	2.3
		<u>8,870.8</u>	<u>7,377.8</u>	<u>7,149.4</u>
Current liabilities				
Interest-bearing loans and borrowings	19	248.0	61.1	63.0
Lease liabilities	26	125.4	-	-
Trade and other payables.....	20	1,772.0	1,841.6	1,877.9
Tax payable.....		278.0	377.6	248.4
Derivative financial instruments.....	15	59.5	-	0.2
Provisions.....	22	27.6	10.9	12.5
		<u>2,510.5</u>	<u>2,291.2</u>	<u>2,202.0</u>
Total liabilities.....		<u>11,381.3</u>	<u>9,669.0</u>	<u>9,351.4</u>
Total equity and liabilities.....		<u>12,909.3</u>	<u>12,586.5</u>	<u>11,048.2</u>

These financial statements were approved by the board of directors on 20 March 2020 and were signed on its behalf by:

Natalina Arena
Director

Peter Huyck
Director

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

INEOS Group Holdings S.A.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY FOR THE YEAR ENDED 31 DECEMBER 2019

	<u>Share capital</u>	<u>Share premium</u>	<u>Other reserves</u>	<u>Retained earnings</u>	<u>Total equity</u>
	€m				
Balance at 1 January 2017	0.9	779.4	(1,712.5)	1,362.3	430.1
Profit for the year	-	-	-	1,998.3	1,998.3
Other comprehensive income/(expense):					
Foreign exchange translation differences	-	-	84.5	-	84.5
Net loss on hedge of net investment in foreign operations.....	-	-	(637.5)	-	(637.5)
Remeasurements of post employment benefit obligations.....	-	-	82.3	-	82.3
Transactions with owners, recorded directly in equity:					
Dividend.....	-	-	-	(260.9)	(260.9)
Balance at 31 December 2017	0.9	779.4	(2,183.2)	3,099.7	1,696.8
Impact of new accounting standards (see Note 1)	-	-	-	(6.1)	(6.1)
Total equity at 1 January 2018	0.9	779.4	(2,183.2)	3,093.6	1,690.7
Profit for the year	-	-	-	1,195.3	1,195.3
Other comprehensive income/(expense):					
Foreign exchange translation differences	-	-	(23.3)	-	(23.3)
Net gain on hedge of net investment in foreign operations.....	-	-	271.3	-	271.3
Remeasurements of post employment benefit obligations.....	-	-	(22.7)	-	(22.7)
Transactions with owners, recorded directly in equity:					
Dividend.....	-	-	-	(193.8)	(193.8)
Balance at 31 December 2018	0.9	779.4	(1,957.9)	4,095.1	2,917.5
Profit for the year	-	-	-	723.3	723.3
Other comprehensive income/(expense):					
Foreign exchange translation differences	-	-	(1.9)	-	(1.9)
Net gain on hedge of net investment in foreign operations.....	-	-	88.0	-	88.0
Remeasurements of post employment benefit obligations.....	-	-	(132.3)	-	(132.3)
Transactions with owners, recorded directly in equity:					
Capital reduction.....	-	(193.8)	-	193.8	-
Dividend.....	-	-	-	(2,066.6)	(2,066.6)
Balance at 31 December 2019	0.9	585.6	(2,004.1)	2,945.6	1,528.0

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

INEOS Group Holdings S.A.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY FOR THE YEAR ENDED 31 DECEMBER 2019 (continued)

Analysis of other reserves

	Translation reserve	Employee benefits	Merger reserve	Total other reserves
	€m			
Balance at 1 January 2017	(289.8)	(622.0)	(800.7)	(1,712.5)
Foreign exchange translation differences	84.5	-	-	84.5
Net loss on hedge of net investment in foreign operations	(637.5)	-	-	(637.5)
Remeasurements of post employment benefit obligations.....	-	82.3	-	82.3
Balance at 31 December 2017	(842.8)	(539.7)	(800.7)	(2,183.2)
Foreign exchange translation differences	(23.3)	-	-	(23.3)
Net gain on hedge of net investment in foreign operations.....	271.3	-	-	271.3
Remeasurements of post employment benefit obligations.....	-	(22.7)	-	(22.7)
Balance at 31 December 2018	(594.8)	(562.4)	(800.7)	(1,957.9)
Foreign exchange translation differences	(1.9)	-	-	(1.9)
Net gain on hedge of net investment in foreign operations.....	88.0	-	-	88.0
Remeasurements of post employment benefit obligations.....	-	(132.3)	-	(132.3)
Balance at 31 December 2019	(508.7)	(694.7)	(800.7)	(2,004.1)

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

INEOS Group Holdings S.A.

CONSOLIDATED STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2019

	Note	2019	2018	2017
Cash flows from operating activities			€m	
Profit before tax		939.6	1,474.2	2,299.8
Adjustments for:				
Depreciation and impairment	10	681.8	456.0	454.4
Amortisation.....	11	3.4	13.2	13.9
Net finance costs/(income).....	4,8	341.8	277.8	(92.6)
Share of (profit)/loss of equity-accounted investees.....	12a	(67.0)	66.6	(143.5)
Profit on disposal of investments	13	(2.6)	-	-
Profit on sale of property, plant and equipment		-	-	(2.6)
Decrease/(increase) in trade and other receivables.....		247.5	155.8	(268.1)
Decrease/(increase) in inventories.....		195.3	(138.3)	(239.0)
(Decrease)/increase in trade and other payables.....		(105.4)	(45.3)	314.8
Increase/(decrease) in provisions and employee benefits.....		23.5	(7.5)	(6.5)
Tax paid		(172.4)	(202.1)	(143.1)
Net cash generated from operating activities.....		<u>2,085.5</u>	<u>2,050.4</u>	<u>2,187.5</u>
Cash flows from investing activities.....				
Proceeds from sale of property, plant and equipment		0.4	-	8.3
Proceeds from sales of investments.....		260.9	0.6	1.3
Interest and other finance income received		65.0	62.5	50.9
Dividends received.....		6.0	5.0	5.3
Acquisition of businesses, net of cash acquired	3	(70.7)	(7.4)	(2.5)
Loans granted to related parties.....		-	-	(315.7)
Loan repayments from related parties		-	105.4	497.7
Acquisition of intangible assets.....		(44.5)	(20.2)	(18.4)
Acquisition of property, plant and equipment		(1,380.0)	(1,173.5)	(914.6)
Acquisition of other investments.....		-	(12.9)	(57.8)
Net cash used in investing activities.....		<u>(1,162.9)</u>	<u>(1,040.5)</u>	<u>(745.5)</u>
Cash flows from financing activities				
Securitisation Facility.....		6.4	(1.2)	(0.1)
Inventory Financing Facility		190.9	-	-
Proceeds from new Senior Secured Notes.....		770.0	-	550.0
Redemption of Senior Secured Notes.....		(770.0)	-	-
Refinancing of Senior Secured Term Loans.....		-	-	(883.1)
Redemption of Senior Notes		-	-	(1,151.9)
Issue costs paid.....		(16.9)	(0.4)	(21.7)
Interest paid.....		(329.7)	(227.8)	(310.6)
Proceeds from other loans		392.0	120.0	-
Repayment of loans.....		(74.9)	(64.6)	(64.6)
Dividends paid	24	(2,066.6)	(193.8)	(260.9)
Capital element of finance lease payments.....		-	(0.1)	(0.1)
Capital element of lease payments		(128.4)	-	-
Net cash used in financing activities.....		<u>(2,027.2)</u>	<u>(367.9)</u>	<u>(2,143.0)</u>
Net (decrease)/increase in cash and cash equivalents.....	28	(1,104.6)	642.0	(701.0)
Cash and cash equivalents at 1 January.....	28	2,071.3	1,366.3	2,204.1
Effect of exchange rate fluctuations on cash held		16.2	63.0	(136.8)
Cash and cash equivalents at 31 December.....	28	<u>982.9</u>	<u>2,071.3</u>	<u>1,366.3</u>

The notes on pages F-13 to F-90 are an integral part of these consolidated financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 (*forming part of the financial statements*)

1. ACCOUNTING POLICIES

Overview

Ineos Group Holdings S.A. (the “Company”) is a company incorporated and domiciled in the form of a société anonyme under the laws of the Grand-Duchy of Luxembourg, having its registered office at 58, rue Charles Martel, L-2134 Luxembourg, Grand-Duchy of Luxembourg. The nature of the operations and principal activities of the Company and its subsidiaries are the manufacture and sale of a range of chemicals and refined products used in a variety of applications.

Basis of accounting

The Group financial statements consolidate those of the Company and its subsidiaries (together referred to as the “Group”) and equity account the Group’s interest in associates and joint ventures.

The Group financial statements have been prepared on a going concern basis and approved by the directors in accordance with International Financial Reporting Standards (IFRSs) as adopted by the European Union in response to the IAS regulation (EC 1606/2002) effective as of December 31, 2019 and have been approved for issuance by the Board of Directors on March 20, 2020.

The accounting policies set out below have, unless otherwise stated, been applied consistently to all periods presented in these Group financial statements.

Measurement convention

The financial statements are prepared on the historical cost basis except for derivative financial instruments, financial instruments and financial assets classified as fair value through the profit or loss or fair value through other comprehensive income which are stated at their fair value.

Functional and presentation currency

These Group financial statements are presented in euro, which is the functional currency of the majority of operations, with other significant currencies being USD and Sterling. The Group’s primary products are sold in an international commodities market which is priced and invoiced primarily in euros.

All financial information presented in euro has been rounded to the nearest €0.1 million.

Changes in accounting policies

The Group financial statements have been prepared using consistent accounting policies with the those of the previous financial year. From January 1, 2019 the Group has applied IFRS 16 *Leases* for the first time along with a number of other new standards, although only IFRS 16 has had a material effect on the Group’s financial statements.

IFRS 16 Leases

IFRS 16 replaces previous leasing guidance, including IAS 17 *Leases*, IFRIC 4 *Determining whether an Arrangement contains a Lease*, SIC-15 *Operating Leases – Incentives* and SIC-27 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*.

IFRS 16 introduces a single, on-balance sheet lease accounting model for lessees. A lessee recognises a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. These liabilities are measured at the present value of the remaining lease payments, discounted using the rate implicit in the lease or if that is not available the lessee’s incremental borrowing rate.

For leases in which the Group is a lessor, no significant impact has arisen. Lessor accounting in *IFRS 16 Leases* remains similar to the previous standard *IAS 17 Leases*, with lessors continuing to classify leases as finance or operating leases.

The Group has applied *IFRS 16* on January 1, 2019, using the ‘modified retrospective approach’ without restatement of comparative information. The details of the changes in accounting policies are disclosed below.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

i) Adjustments recognised on adoption of IFRS 16 in which the Group is a lessee

The Group has recognised new right-of-use assets and lease liabilities for lease contracts previously classified as operating leases, which include vessels, storage and transportation infrastructure. The nature of expenses related to those leases has changed because the Group recognises a depreciation charge for right-of-use assets and interest expense on lease liabilities. Previously, the Group recognised operating lease expense on a straight-line basis over the term of the lease, and recognised assets and liabilities only to the extent that there was a timing difference between actual lease payments and the expense recognised. In addition, the Group no longer recognises provisions for operating leases that it assesses to be onerous. Instead, the Group now includes the payments due under the lease in its lease liability, and recognises any required impairment of the corresponding right-of-use asset.

At commencement or on modification of a contract that contains a lease and non-lease component, the Group allocates the consideration in the contract to each component on the basis of its relative stand-alone price.

On transition lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as at 1 January 2019. Right-of-use assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

The table below provides a reconciliation between operating lease commitments disclosed as at December 31, 2018 and the lease liability recognised as at January 1, 2019.

	2019
	<i>(€ in millions)</i>
Operating lease commitments disclosed as at December 31, 2018.....	1,037.3
Impact of discounting using the Group's incremental borrowing rates at the date of initial application.....	(227.1)
Less:	
Short-term leases recognised on a straight-line basis as expense	(9.4)
Low-value leases recognised on a straight-line basis as an expense.....	(0.3)
Add:	
Reassessment of service/non-lease components of leases and service contracts as leases	77.0
Adjustments related to variable lease payments based on an index or rate	0.2
Adjustments as a result of a different treatment of extension and termination options	21.7
Additional lease liability recognised on January 1, 2019.....	899.4
Add finance lease liabilities recognised as at December 31, 2018	1.2
Lease liability recognised as at January 1, 2019.....	900.6
<i>Of which are:</i>	
Current lease liabilities	173.4
Non-current lease liabilities	727.2
	900.6

Included within the lease liability on January 1, 2019 is €40.9 million in respect of related party leases.

The weighted average incremental borrowing rate applied to the lease liabilities on January 1, 2019 was 5.2%.

The change in accounting policy affected the following items in the balance sheet on January 1, 2019:

- *Right-of-use assets* – increase of €903.0 million. This includes the leased assets recognised previously as finance leases of €3.6 million that were reclassified from property, plant and equipment.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

- *Property, plant and equipment* – decrease of €3.6 million. This relates to the reclassification of leased assets, previously recognised as finance leases, to Right-of-use assets.
- *Lease liabilities* – increase of €899.4 million. From January 1, 2019 all lease liabilities (including finance leases recognised as at December 31, 2018) have been categorised within “Lease liabilities” on the balance sheet.

The net impact on retained earnings on January 1, 2019 was €nil.

(ii) *Practical expedients applied*

The Group had a number of arrangements that were not in the legal form of a lease, for which it concluded that the arrangement contained a lease under IFRIC 4. On transition to *IFRS 16*, the Group did not apply the practical expedient to grandfather the definition of a lease on transition. Therefore, the new definition of a lease under *IFRS 16* has been applied to all of the contracts in place on transition.

When applying the modified retrospective approach to leases previously classified as operating leases under *IAS 17*, the Group has elected to apply the following practical expedients:

- the use of a single discount rate to a portfolio of leases with reasonably similar characteristics,
- reliance on previous assessments on whether leases are onerous,
- the accounting for operating leases with a remaining lease term of less than 12 months as at 1 January 2019 as short-term leases,
- the accounting for leases with a lease term of 12 months or less as short-term leases. The Group did not recognise right-of-use assets and liabilities for these short-term leases. The lease payments associated with them will be recognised as an expense on a straight-line basis over the lease term,
- the accounting for leases, for which the underlying asset is of low value when it is new, as low value leases, The Group did not recognise right-of-use assets and liabilities for these low-value leases. The lease payments associated with them will be recognised as an expense on a straight-line basis over the lease term,
- the exclusion of initial direct costs from the measurement of the right-of-use asset at the date of initial application, and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

(iii) *Adjustments in respect of leases where the Group is a lessee and the leases were previously classified as finance leases under IAS 17*

For leases classified as finance leases under *IAS 17*, the carrying amount of the right-of-use asset and the lease liability at 1 January 2019 were determined at the carrying amount of the lease asset and lease liability under *IAS 17* immediately before that date.

The Group has applied *IFRS 16* using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under *IAS 17* and *IFRIC 4*. The details of accounting policies under *IAS 17* and *IFRIC 4* are disclosed separately.

Policies applicable from 1 January 2019

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group uses the definition of a lease in *IFRS 16*.

This policy is applied to contracts entered into on or after 1 January 2019.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Group as a lessee

Right-of-use assets

The Group recognises right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized and lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

Lease liabilities

At the commencement date of the lease, the Group recognises lease liabilities measured at the present value of lease payments to be made over the lease term, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate.

The lease payments include fixed payments (including in-substance fixed payments), variable lease payments that depend on an index or a rate (initially measured using the index or rate as at the commencement date), amounts expected to be paid under residual value guarantees less any lease incentives receivable. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are expensed in the period in which the event or condition that triggers the payment occurs.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments a change in the assessment of whether the Group is reasonably certain to exercise an option to purchase the underlying asset, a change in future lease payments arising from a change in an index or rate, or if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee.

When the lease liability is remeasured in this way and there has been no change in the scope of the lease, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to all leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option. The Group also applies the lease of low-value assets recognition exemption to leases of assets that are valued below €10,000. Lease payments on short-term leases and leases of low-value assets are recognised as expense on a straight-line basis over the lease term.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 (*forming part of the financial statements*)

1. ACCOUNTING POLICIES (continued)

Policies applicable prior to 1 January 2019

Operating lease payments

Payments made under operating leases are recognised in the consolidated income statement on a straight-line basis over the term of the lease. Lease incentives received are recognised in the consolidated income statement as an integral part of the total lease expense.

Finance lease payments

Minimum lease payments are apportioned between the finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability.

Basis of consolidation

Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The Group applies the acquisition method to account for business combinations, except acquisitions under common control which are outside the scope of IFRS 3. The consideration transferred for the acquisition of a subsidiary is the fair values of the assets transferred, the liabilities incurred to the former owners of the acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. The Group recognises any non-controlling interest in the acquiree on an acquisition-by-acquisition basis, either at fair value or at the non-controlling interest's proportionate share of the recognised amounts of acquiree's identifiable net assets. Acquisition-related costs are expensed as incurred.

If the business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measurement are recognised in profit or loss.

Any contingent consideration to be transferred by the Group is recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognised in accordance with IFRS 9 in the profit or loss. Contingent consideration that is classified as equity is not re-measured, and its subsequent settlement is accounted for within equity.

Inter-company transactions, balances and unrealised gains on transactions between Group companies are eliminated. Unrealised losses are also eliminated.

Transactions with non-controlling interests that do not result in loss of control are accounted for as equity transactions – that is, as transactions with the owners in their capacity as owners. The difference between fair value of any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

When the Group ceases to have control any retained interest in the entity is remeasured to its fair value at the date when control is lost, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

Special purpose entities (“SPE”)

An SPE is consolidated if, based on an evaluation of the substance of its relationship with the Group and the SPE’s risks and rewards, the Group concludes that it controls the SPE. The Group has established an SPE, Ineos Finance Ireland Limited, for a debt securitisation programme. The Group does not have any direct or indirect shareholdings in this SPE. Ineos Finance Ireland Limited is controlled by the Group as it was established under terms that impose strict limitations on the decision-making powers of the SPE’s management that result in the Group receiving the majority of the benefits related to the SPE’s operations and net assets, being exposed to the majority of risks arising from the SPE’s activities, and retaining the majority of the residual or ownership risks related to the SPE and its assets. Ineos Finance Ireland Limited is therefore regarded as an SPE and has been consolidated in these financial statements.

Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method of accounting. Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor’s share of the profit or loss of the investee after the date of acquisition. The Group’s investment in associates includes goodwill identified on acquisition. If the ownership interest in an associate is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate.

The Group’s share of post-acquisition profit or loss is recognised in the income statement, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income with a corresponding adjustment to the carrying amount of the investment. When the Group’s share of losses in an associate equals or exceeds its interest in the associate, including any other unsecured receivables, the Group does not recognise further losses, unless it has incurred legal or constructive obligations or made payments on behalf of the associate.

The Group determines at each reporting date whether there is any objective evidence that the investment in the associate is impaired. If this is the case, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate and its carrying value and recognises the amount adjacent to ‘share of profit/(loss) of associates’ in the income statement.

Profits and losses resulting from upstream and downstream transactions between the Group and its associate are recognised in the Group’s financial statements only to the extent of unrelated investor’s interests in the associates. Unrealised losses are eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group.

Joint arrangements

The Group applies IFRS 11 to all joint arrangements. Under IFRS 11 investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor. The Group has assessed the nature of its joint arrangements and determined them to be joint ventures. Joint ventures are accounted for using the equity method.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Under the equity method of accounting, interests in joint ventures are initially recognised at cost and adjusted thereafter to recognise the Group's share of the post-acquisition profits or losses and movements in other comprehensive income. When the Group's share of losses in a joint venture equals or exceeds its interests in the joint ventures (which includes any long-term interests that, in substance, form part of the Group's net investment in the joint ventures), the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the joint ventures.

Unrealised gains on transactions between the Group and its joint ventures are eliminated to the extent of the Group's interest in the joint ventures. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of the joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

Foreign exchange

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at the foreign exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies at the reporting date are retranslated to the functional currency at the foreign exchange rate ruling at that date. Foreign exchange differences arising on translation are recognised in the consolidated income statement except for differences arising on the retranslation of a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognised in other comprehensive income. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign exchange are translated using the exchange rate at the date of the transaction. Non-monetary assets and liabilities denominated in foreign currencies that are stated at fair value are retranslated to the functional currency at foreign exchange rates ruling at the dates the fair value was determined.

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on consolidation, are translated to the Group's presentational currency, euros, at foreign exchange rates ruling at the reporting date. The revenues and expenses of foreign operations are translated at exchange rates prevailing at the dates of the transactions. The Group applies an average rate for the year where this rate approximates to the foreign exchange rates ruling at the dates of the transactions. Exchange differences arising from this translation of foreign operations are taken directly to the translation reserve. They are recycled into the consolidated income statement upon disposal.

Exchange differences arising from a monetary item receivable from or payable to a foreign operation, the settlement of which is neither planned nor likely in the foreseeable future, are considered to form part of a net investment in a foreign operation and are recognised directly in equity in the translation reserve. Foreign exchange differences arising on the retranslation of a borrowing designated as a hedge of a net investment in a foreign operation are recognised directly in OCI, in the translation reserve, to the extent that the hedge is effective. When the hedged part of a net investment is disposed of, the associated cumulative amount in equity is transferred to profit or loss as an adjustment to the profit or loss on disposal.

Classification of financial instruments issued by the Group

Financial instruments issued by the Group are treated as equity only to the extent that they meet the following two conditions:

- (a) They include no contractual obligation upon the Group to deliver cash or other financial assets or to exchange financial assets or financial liabilities with another party under conditions that are potentially unfavourable to the Group; and
- (b) Where the instrument will or may be settled in the Company's own equity instruments, it is either a non-derivative that includes no obligation to deliver a variable number of the Company's own equity instruments or is a derivative that will be settled by the Company's exchanging a fixed amount of cash or other financial assets for a fixed number of its own equity instruments.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

To the extent that this definition is not met, the proceeds of issue are classified as a financial liability. Where the instrument so classified takes the legal form of the Company's own shares, the amounts presented in these financial statements for called up share capital and share premium account exclude amounts in relation to those shares.

Non-derivative financial instruments

Non-derivative financial instruments comprise investments in equity and debt securities, trade and other receivables, cash and cash equivalents, loans and borrowings, and trade and other payables.

Trade and other receivables

Trade and other receivables are recognised initially at fair value plus transaction costs that are directly attributable to the acquisition or issue. Subsequent to initial recognition they are tested for classification as per IFRS 9. If the trade receivables satisfy the criteria for cash flow characteristics test and business model test as per IFRS 9, then they are recognised at amortised cost. If they do not qualify for being recognised at amortised cost they are recognised at fair value through profit or loss or at fair value through other comprehensive income.

Trade and other payables

Trade and other payables are recognised initially at fair value less transaction costs that are directly attributable to the acquisition or issue. Subsequent to initial recognition, they are measured at amortised cost using the effective interest method.

Investments in debt and equity securities

Investments in debt securities are measured at amortised cost if they meet both of the following conditions and are not designated as a fair value through profit and loss:

- The asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A financial asset is measured at fair value through other comprehensive income only if it meets both of the following conditions and is not designated as a fair value through profit and loss:

- The asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

For investment in equity securities that are not held for trading, the Group may irrevocably elect to present subsequent changes to fair value in other comprehensive income. The Group makes this election on an investment-by-investment basis.

All other financial assets, including derivatives, are classified as measured at fair value through profit and loss. When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in the income statement. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in the income statement. Where no reliable measurement of fair value is available, investments are stated at historic acquisition cost.

Cash and cash equivalents

Cash and cash equivalents comprise of cash balances and call deposits.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 (*forming part of the financial statements*)

1. ACCOUNTING POLICIES (continued)

Interest-bearing borrowings

Interest-bearing borrowings are recognised initially at fair value less attributable transaction costs. Subsequent to initial recognition, interest-bearing borrowings are stated at amortised cost using the effective interest method.

Debt restructuring

The Group derecognises financial liabilities in accordance with the provisions in IFRS 9. When debt is modified, the Group analyses the modifications from both a quantitative and qualitative perspective to determine if the modifications are substantial and meet the IFRS requirements for de-recognition, in which case the debt is treated as extinguished. All fees paid in connection with a debt extinguishment are expensed immediately. When a modification is accounted for as a non-substantial modification, associated fees incurred are deferred as an adjustment to the carrying value of the liability and amortised using the effective interest method.

Derivative financial instruments and hedging

Derivative financial instruments

Derivative financial instruments are initially recognised at fair value. The gain or loss on subsequent re-measurement to fair value is recognised immediately in the consolidated income statement as finance income or expense. Where derivatives qualify for hedge accounting, recognition of any resultant gain or loss depends on the nature of the item being hedged.

Cash flow hedges

Where a derivative financial instrument is designated as a hedge of the variability in cash flows of a recognised asset or liability or a highly probable forecast transaction, the effective part of any gain or loss on the derivative financial instrument is recognised directly in the hedging reserve. The effective portion of changes in the fair value of the derivative that is recognised in hedging reserve is limited to the cumulative change in fair value of the hedged item, determined on a present value basis, from inception of the hedge. Any ineffective portion of the hedge is recognised immediately in the consolidated income statement as finance income or expense.

Where the forecast transaction subsequently results in the recognition of a non-financial asset or non-financial liability, the associated cumulative gain or loss is removed from the hedging reserve and is included in the initial carrying amount of the non-financial asset or liability.

If a hedge of a forecast transaction subsequently results in the recognition of a financial asset or a financial liability, the associated gains and losses that were recognised directly in equity are reclassified into profit or loss in the same period or periods during which the hedged expected future cash flows affect profit or loss, e.g. when interest income or expense is recognised.

For cash flow hedges, other than those covered by the preceding two policy statements, the associated cumulative gain or loss is removed from equity and included in the consolidated income statement as an adjustment to revenue and cost of sales in the same period or periods during which the hedged forecast transaction affects revenue and cost of sales in the consolidated income statement.

When a hedging instrument expires, is sold, terminated, exercised, or the hedge no longer meets the criteria for hedge accounting, hedge accounting is discontinued prospectively. The cumulative gain or loss at that point remains in equity and is recognised in accordance with the above policy when the transaction occurs. If the hedged transaction is no longer expected to take place, the cumulative unrealised gain or loss recognised in equity is recognised in the consolidated income statement immediately.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Hedge of net investment of foreign operation

The Group applied hedge accounting to foreign exchange differences arising on the retranslation of a foreign currency loan where the loan is designated as a hedge of a net investment in a foreign operation in accordance with IFRS 9.

Most commonly this means that exchange differences arising on retranslation of foreign currency loans designated as a net investment hedge are recognised in the consolidated statement of comprehensive income. Gains and losses accumulated in the translation reserve will be recycled to the statement of comprehensive income when the foreign operation is sold.

When a derivative instrument or a non-derivative financial liability is designated as the hedging instrument in a hedge of a net investment in a foreign operation, the effective portion of, for a derivative changes in the fair value of the hedging instrument or, for a non-derivative, foreign exchange gains and losses is recognised in OCI and presented in the translation reserve within equity. Any ineffective portion of the changes in the fair value of the derivative or foreign exchange gains and losses on the non-derivative is recognised immediately in the income statement. The amount recognised in OCI is reclassified to the income statement as a reclassification adjustment on disposal of the foreign operation.

Property, plant and equipment

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. Cost may include the cost of materials, labour and other costs directly attributable to bringing the assets to a working condition for their intended use. Cost may also include the cost of dismantling and removing items and restoring the site on which they are located.

Where parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items of property, plant and equipment.

Depreciation is charged to the consolidated income statement on a straight-line basis over the estimated useful lives of each part of an item of property, plant and equipment. Depreciation commences from the date an asset is brought into service. Land and assets in the course of construction are not depreciated. The estimated useful lives are as follows:

- Buildings 10 - 40 years
- Plant and equipment and fixtures and fittings 3 - 40 years

Depreciation methods, useful lives and residual values are reviewed at each reporting date.

The carrying values of property, plant and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable. Where an indicator of impairment exists, the Group makes an estimate of the recoverable amount, which is the higher of the asset's fair value less cost to sell and value in use. Where the carrying amount of an asset exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount.

Assets are derecognised upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on de-recognition of the asset (calculated as the difference between the net disposal proceeds and the carrying value of the asset) is included in the consolidated income statement in the period in which the item is derecognised.

Business combinations, goodwill and intangible assets

All business combinations are accounted for by applying the Acquisition method, except acquisitions under common control which are outside the scope of IFRS 3. Goodwill represents amounts arising on

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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1. ACCOUNTING POLICIES (continued)

acquisition of subsidiaries, associates and joint ventures.

Acquisitions under common control are accounted for at book value. The difference in the book value of the assets acquired and consideration paid is recognised in retained earnings.

Goodwill is stated at cost less any accumulated impairment losses. Goodwill is allocated to groups of cash-generating units and is not amortised but is tested annually for impairment. The cash generating units within the Group are predominately business units. In respect of equity accounted investees, the carrying amount of goodwill is included in the carrying amount of the investment in the investee.

Negative goodwill arising on an acquisition is recognised immediately in the consolidated income statement.

Intangible assets

Intangible assets that are acquired by the Group are stated at cost less accumulated amortisation and accumulated impairment losses. These intangible assets principally comprise intellectual property rights, customer relationships, non-compete agreements and license fees.

Intangible assets acquired separately from a business are carried initially at cost. The initial cost is the aggregate amount paid and the fair value of other consideration given to acquire the assets. An intangible asset acquired as part of a business combination is recognised separately from goodwill if the asset is separable or arises from contractual or other legal rights and its fair value can be measured reliably.

Amortisation

Amortisation is charged to the consolidated income statement on a straight-line basis over the estimated useful lives of intangible assets unless such lives are indefinite. Intangible assets with an indefinite useful life and goodwill are systematically tested for impairment at each reporting date. Other intangible assets are amortised from the date they are available for use. The estimated useful lives are as follows:

- | | |
|--------------------------------|-----------------------|
| • Customer relationships | 3 – 12 years |
| • Intellectual property rights | 10 – 15 years |
| • Non-compete agreements | life of the agreement |
| • Licenses | up to 15 years |

These intangible assets are tested for impairment at the end of the reporting period if events or changes in circumstances indicate that the carrying value may not be recoverable. Useful lives are examined on an annual basis and adjustments, where applicable, are made on a prospective basis.

Research and development

Expenditure on research activities is recognised in the consolidated income statement as an expense as incurred.

Expenditure on development activities is capitalised if the product or process is technically and commercially feasible and the Group intends to and has the technical ability and sufficient resources to complete development, future economic benefits are probable and if the Group can measure reliably the expenditure attributable to the intangible asset during its development. Development activities involve a plan or design for the production of new or substantially improved products or processes. The expenditure capitalised includes the cost of materials, direct labour and an appropriate proportion of overheads. Where regulatory and other uncertainties are such that the criteria are not met, the expenditure is recognised in the income statement. Other development expenditure is recognised in the income statement as an expense as incurred. Capitalised development expenditure is stated at cost less accumulated amortisation and less accumulated impairment losses.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Impairment of financial assets

Trade and other receivables

The Group applies the simplified approach when providing for expected credit losses prescribed by IFRS 9 for its trade receivables and contract assets. This approach requires the Group to recognise the lifetime expected loss provision for all trade receivables taking in consideration historical as well as forward-looking information.

Where the Group has assessed the probability of default of a financial asset to be low, the loss allowance is considered immaterial.

The Group assesses on a forward looking basis the expected credit losses associated with the financial assets classified at amortised cost at each balance sheet date, and adjusts the allowance accordingly.

Investments in debt and equity securities

Impairment of equity securities classified as FVOCI are not tested for impairment under IFRS 9. If the fair value of a debt instrument classified as FVOCI increases and the increase can be objectively related to an event occurring after the impairment loss was recognised in the income statement, the impairment loss is reversed through profit or loss.

Impairment of non-financial assets excluding inventories and deferred tax assets

The carrying amounts of the Group's non-financial assets, other than inventories and deferred tax assets are assessed at the end of the reporting period to determine whether there is any indication of impairment.

For goodwill and other intangible assets that have an indefinite useful life and intangible assets that are not yet available for use, the recoverable amount is estimated at the end of the reporting period.

An impairment loss is recognised whenever the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. Impairment losses are recognised in the consolidated income statement.

Impairment losses recognised in respect of cash-generating units are allocated first to reduce the carrying amount of any goodwill allocated to cash-generating units and then to reduce the carrying amount of the other assets in the unit on a pro rata basis. A cash generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.

Calculation of recoverable amount

The recoverable amount is the greater of fair value less cost to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

For an asset that does not generate largely independent cash inflows, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

Reversals of impairment

An impairment loss in respect of goodwill is not reversed.

In respect of other assets, an impairment loss is reversed when there is an indication that the impairment loss may no longer exist and there has been a change in the estimates used to determine the recoverable amount.

An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Inventories

Inventories are stated at the lower of cost, using the first-in first-out or average cost method, and net realisable value which is defined as the estimated selling price less the estimated cost of completion and the estimated costs necessary to make the sale. Cost includes expenditure incurred in acquiring the inventories, production or conversion costs and other costs in bringing them to their existing location and condition. In the case of manufactured inventories and work in progress, cost includes an appropriate share of overheads based on normal operating capacity. Provision is made for obsolete, slow-moving or defective items where appropriate.

Items owned by the Group that are held on consignment at another entity's premises are included as part of the Group's inventory.

Commodities

Contracts that are entered into and continue to be held for the purpose of receipt or delivery of non-financial items in accordance with the Group's expected purchase, sale or usage requirements (own-use contracts) are not accounted for as derivative financial instruments, but rather as executory contracts.

Employee benefits

The Group operates a number of defined contribution plans and funded and unfunded defined benefit pension schemes. The Group also provides unfunded early retirement benefits, long service awards and an incentive plan for certain employees.

The Group provides health care insurance to eligible retired employees and their dependants, primarily in the United States.

Defined contribution plans

A defined contribution plan is a post-employment benefit plan under which the Group pays fixed contributions into a separate entity and will have no legal or constructive obligation to pay further amounts. Obligations for contributions to defined contribution pension plans are recognised as an expense in the consolidated income statement as incurred.

Defined benefit plans

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit pension plans and other post employment benefits is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value, and the fair value of any plan assets (at bid price) are deducted. The liability discount rate is the yield at the reporting date on AA credit rated bonds denominated in the currency of, and that have maturity dates approximating to the terms of, the Group's obligations. The calculation is performed by a qualified actuary using the projected unit credit method.

When the benefits of a plan are amended or curtailed, the portion of the increased or decreased benefit relating to past service by employees is recognised as an expense immediately in the consolidated income statement.

Where the calculation results in a benefit to the Group, the asset recognised is limited to the present value of any future refunds from the plan or reductions in future contributions to the plan.

The pension scheme surplus (to the extent that it is recoverable) or deficit is recognised in full.

The movement in the scheme surplus/deficit is split between:

- cost of sales and administrative expenses,
- net finance costs and,

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

- in net expense recognised directly in equity, the remeasurements of post employment benefit obligations.

Short-term benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed as the related service is provided. A liability is recognised for the amount expected to be paid under short-term cash bonus or profit-sharing plans if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

Provisions

A provision is recognised in the consolidated balance sheet when the Group has a present legal or constructive obligation as a result of a past event, that can be reliably measured and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects risks specific to the liability.

Share capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of new shares are shown in equity as a deduction, net of tax, from the proceeds.

Revenue

Revenue represents the invoiced value of products and services sold or services provided to third parties net of sales discounts, value added taxes and duties. Contracts for goods and services are analysed to determine the distinct performance obligations against which revenue should be recognised. The amount to be recognised is determined from the standalone selling prices for goods and services, allocated to the performance obligations. Revenue is recognised when (or as) the performance obligations are satisfied by transferring a promised good or service to a customer.

The pricing for products sold is determined by market prices (market contracts and arrangements) or is linked by a formula to published raw material prices plus an agreed additional amount (formula contracts). Revenue arising from the sale of goods is recognised when the goods are dispatched or delivered depending on the relevant delivery terms and point at which the control of the good or service is transferred to the customer.

Services provided to third parties include administrative and operational services provided to other chemical companies with facilities on our sites and services under tolling arrangements. Under tolling arrangements, customers pay for or provide raw materials to be converted into certain specified products, for which the Group charges a toll fee. The Group only recognises toll fee as revenue earned under such arrangements upon shipment of the converted product to the customer as this is the point at which the control of the service is transferred to the buyer. For all other services, revenue is recognised at a point in time. There are no arrangements of significance which transfer goods or services over time.

Government grants

Government grants are shown in the consolidated balance sheet as deferred income. This income is amortised on a straight line basis over the same period as the tangible fixed asset to which it relates or the life of the related project.

Finance income and expenses

Interest income and interest expense are recognised in the consolidated income statement as it accrues, using the effective interest method. Dividend income is recognised in the consolidated income statement on the date the entity's right to receive payments is established. Foreign exchange gains and losses are reported on a gross basis.

Finance costs comprise interest payable, finance charges on leases, unwinding of the discount on provisions, net fair value losses on derivatives, net interest on employee benefit liabilities and foreign exchange losses that are recognised in the consolidated income statement (see foreign exchange accounting policy).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

Finance income comprises interest receivable on funds invested and from related party loans, net fair value gains on derivatives and foreign exchange gains.

Taxation

Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the consolidated income statement except to the extent that it relates to items recognised directly in equity, in which case it is recognised in equity.

Current tax is the expected tax payable on the taxable income for the year, using tax rates enacted or substantively enacted at the end of the reporting period, and any adjustment to tax payable in respect of previous years.

Deferred tax is provided on temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. The following temporary differences are not provided for: the initial recognition of goodwill; the initial recognition of assets or liabilities that affect neither accounting nor taxable profit other than in a business combination; and differences relating to investments in subsidiaries to the extent that they will probably not reverse in the foreseeable future. The amount of deferred tax provided is based on the expected manner of realisation or settlement of the carrying amount of assets and liabilities, using tax rates enacted or substantively enacted at the end of the reporting period. Deferred tax assets and liabilities are offset if it is possible that there is a legally enforceable right to offset current tax liabilities and assets because they relate to taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

A deferred tax asset is recognised only to the extent that it is probable that future taxable profits will be available against which the temporary difference can be utilised.

Segmental analysis

The Group determines its operating segments in a manner consistent with the internal reporting provided to the chief operating decision-makers. The chief operating decision-makers are responsible for allocating resources and assessing performance of the operating segments. The chief operating decision-makers are the members of the Executive Committee of the ultimate parent undertaking, Ineos Limited.

An operating segment is a component of the Group that engages in business activities from which it may earn revenues and incur expenses, including revenues and expenses that relate to transactions with any of the Group's other components and for which discrete financial information is available. An operating segment's operating results are reviewed regularly by the chief operating decision-makers to make decisions about resources to be allocated to the segment and assess its performance.

The Group's primary format for segment reporting is based on business segments. The business segments are determined based on the Group's management and internal reporting structure and the aggregation criteria set out in IFRS 8.

Segment results that are reported to the chief operating decision-makers include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

Segment capital expenditure is the total payments made during the period to acquire property, plant and equipment and intangible assets other than as acquired through business combinations.

Emission trading scheme

The Group participates in the EU Emissions Trading Scheme. The Scheme encourages companies to reduce carbon emissions by offering financial incentives if they achieve their annual reduction targets. If a company reduces emissions beyond their target then the surplus may be traded in the form of emissions permits.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

1. ACCOUNTING POLICIES (continued)

The incentive money due from the EU Emissions Trading Scheme is recognised in the consolidated income statement once the reduction targets have been met. The emissions permits allocated under the Scheme are at nil cost. The Group recognises the revenue from such permits upon their sale to third parties.

The Group recognises a provision for emissions produced. The provision is measured at the carrying amount of the emission rights held (nil if granted, otherwise at cost) or, in the case of a shortfall, at the current fair value of the emission rights needed.

Exceptional items

In order to provide readers with a clear and consistent presentation of the underlying operating performance of the Group's ongoing business it separately identifies those profits and losses which because of their size or nature, are outside the normal course of business so are expected to be non-recurring. This may include the disposal of businesses, the impairment of non-current assets, the cost of restructuring acquired businesses, the impact of one off events such as legal settlements or finance costs relating to call premia and write-off of unamortised debt issue costs following substantial modification or redemption of debt as exceptional items.

Accounting standards not applied

A number of new accounting standards and interpretations are effective for annual periods beginning on or after January 1, 2020 and earlier application is permitted. However, the Group has not early adopted the new or amended standards in preparing these consolidated financial statements.

The following new or amended standards and interpretations are not expected to have a material impact on the Group's consolidated financial statements.

- Amendments to References to Conceptual Framework in IFRS Standards.
- Definition of a Business (Amendments to IFRS 3)
- Definition of Material (Amendments to IAS 1 and IAS 8)
- IFRS 17 Insurance Contracts
- Sale or Contribution of Assets between an Investor and its Associate or Joint Venture (Amendments to IFRS 10 and IAS 28)
- Interest Rate Benchmark Reform (Amendments to IFRS 9, IAS 39 and IFRS 7)

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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2. OPERATING SEGMENTS

The determination of the Group's operating segments is based on the business units for which information is reported to the Group's Chief Operating Decision Maker. The Group has three reportable segments, as described below.

The Group's Olefins and Polymers business units produce olefins and related products and a broad range of polymers. The Group's olefins businesses are focused on ethylene and propylene, which are the two largest volume olefins globally and are key building blocks for polymers. These olefins are primarily used as feedstock for the Group's polymers business. In addition, the Group sells olefins to third party customers for a variety of industrial and consumer applications, including plastics, rubber and fibre.

- O&P North America segment – In North America, the group's Olefins and Polymers business comprises five sites including major facilities in Chocolate Bayou, Texas, and Battleground, Texas.
- O&P Europe segment – In Europe, the Group owns and operates two major cracker complexes, in Köln, Germany and Rafnes, Norway. This includes polymers and derivatives units.
- Chemical Intermediates – This reportable segment is the aggregation, in compliance with IFRS 8, of a number of different business units with similar economic and other characteristics. Chemical Intermediates are high-value added chemical products used as key components in a variety of consumer and industrial products. The Group's chemical intermediates businesses are exposed to similar key commodities, namely oil and gas. They produce a range of products including phenol, alpha olefins, solvents, industrial chemicals and nitriles. The Chemical Intermediates processes are similar in that they are all capital intensive and based upon processing and mixing chemical raw materials to produce chemical products for the next stage along the value chain. The Chemical Intermediates products are distributed on a business-to-business basis across the world. This is performed using similar conventional methods of pipeline, truck, rail or ship container depending on the customer location and size of the order. The Chemical Intermediates customer base is similar in that the customers are generally manufacturers of consumer and industrial products in developed markets and mature industrial economies.

The accounting policies of all of the reportable segments are as described in Note 1.

Information regarding the operations of each reportable segment is included in the following tables. Performance is measured based on earnings before interest, tax, depreciation and amortisation and exceptional items, measured under IFRS ("Segment EBITDA"). A reconciliation to IFRS profit before tax is presented in the following tables. Segment EBITDA is used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries. Inter-segment pricing is determined on an arm's length basis. Information regarding segments reviewed by management includes management accounts comprising the profit or loss, cash flows and other financial and non-financial information used to manage the business.

Adjustments in the following tables comprise the following items:

- Elimination of inter-segmental transactions and balances; and
- The Group's share of (loss)/profit in respect of the Refining joint venture.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

2. OPERATING SEGMENTS (continued)

Segment information – 2019

	<u>Reportable segments</u>				<u>Adjust- ments</u>	<u>Amounts in financial statements</u>
	<u>O&P North America</u>	<u>O&P Europe</u>	<u>Chemical Inter- mediates</u>	<u>Total of reportable segments</u>		
	€m					
Reportable segment revenue.....	3,200.8	5,861.9	6,486.8	15,549.5	(1,844.5)	13,705.0
Reportable segment EBITDA.....	726.8	591.4	626.9	1,945.1	-	1,945.1
Depreciation and impairment of property, plant and equipment and amortisation of intangible assets.....	(194.8)	(191.9)	(299.1)	(685.8)	0.6	(685.2)
Exceptional administrative expenses.....	-	-	(48.1)	(48.1)	-	(48.1)
Share of profit of associates and joint ventures.....	4.0	-	-	4.0	63.0	67.0
Profit on disposal of investments.....						2.6
Net finance expense.....						(341.8)
Profit before tax from continuing operations.....						939.6
Payments for capital expenditure.....	590.3	276.9	512.8	1,380.0	-	1,380.0

Major items in the adjustments column include:

- Reportable segment revenues: the elimination of inter-segmental revenues: 2019: €1,844.5 million (2018: €2,196.4 million, 2017: €1,849.6 million).
- Share of profit/(loss) of associates and joint ventures: Refining joint venture: 2019: €63.0 million (2018: €(56.9) million, 2017: €146.1 million).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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2. OPERATING SEGMENTS (continued)

Segment information – 2018

	<u>Reportable segments</u>				<u>Adjust- ments</u>	<u>Amounts in financial statements</u>
	<u>O&P North America</u>	<u>O&P Europe</u>	<u>Chemical Inter- mediates</u>	<u>Total of reportable segments €m</u>		
Reportable segment revenue.....	4,044.1	6,388.8	7,855.0	18,287.9	(2,196.4)	16,091.5
Reportable segment EBITDA.....	<u>798.0</u>	<u>671.7</u>	<u>818.1</u>	<u>2,287.8</u>	<u>-</u>	2,287.8
Depreciation of property, plant and equipment and amortisation of intangible assets	(143.6)	(139.6)	(185.3)	(468.5)	(0.7)	(469.2)
Share of loss of associates and joint ventures.....	(9.7)	-	-	(9.7)	(56.9)	(66.6)
Net finance expense						<u>(277.8)</u>
Profit before tax from continuing operations.....						<u>1,474.2</u>
Payments for capital expenditure.....	<u>389.0</u>	<u>210.9</u>	<u>573.6</u>	<u>1,173.5</u>	<u>-</u>	<u>1,173.5</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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2. OPERATING SEGMENTS (continued)

Segment information - 2017

	Reportable segments				Adjust- ments	Amounts in financial statements
	O&P North America	O&P Europe	Chemical Inter- mediates	Total of reportable segments		
	€m					
Reportable segment revenue.....	3,573.9	5,896.7	7,589.4	17,060.0	(1,849.6)	15,210.4
Reportable segment EBITDA.....	896.0	814.0	819.4	2,529.4	-	2,529.4
Depreciation of property, plant and equipment and amortisation of intangible assets	(149.5)	(136.1)	(181.7)	(467.3)	(1.0)	(468.3)
Share of loss of associates and joint ventures.....	(2.6)	-	-	(2.6)	146.1	143.5
Profit on disposal of fixed assets	0.1	-	2.5	2.6	-	2.6
Net finance costs						92.6
Profit before tax from continuing operations.....						2,299.8
Payments for capital expenditure.....	279.7	236.1	398.8	914.6	-	914.6

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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2. OPERATING SEGMENTS (continued)

Geographic segments

	Revenues		
	2019	2018	2017
	€m		
Geographical information by location of customers:			
Europe	7,943.2	9,129.3	8,720.3
Americas	4,137.2	5,236.2	4,724.3
Rest of World	1,624.6	1,726.0	1,765.8
Total	13,705.0	16,091.5	15,210.4
Geographical information by location from which the Group derives revenue:			
Europe	9,114.7	10,718.4	10,034.6
Americas	4,203.3	5,106.5	4,923.3
Rest of World	387.0	266.6	252.5
Total	13,705.0	16,091.5	15,210.4

In presenting information on the basis of geographic analysis of segments, segment revenue is based on the geographical location of customers and geographical locations from which the Group derives revenues.

Revenues from external customers for each product and service or each group of similar products and services and a geographic analysis of segment assets are not presented as the necessary information is not available and the Directors are of the opinion that the cost to develop it would be excessive.

All businesses within the group typically sell individual cargos based on agreed price with delivery from the plant or at the customer premise. As such, the revenue is recognised as title passes, at a point in time, and there are no arrangements of significance which transfer goods or services over time. No significant contract balances arise. No costs to obtain or fulfil contracts are incurred, and therefore no related assets arise.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2019 *(forming part of the financial statements)*

3. ACQUISITIONS

Acquisition of subsidiary in the current year

INESCO combined heat and power plant

On March 1, 2019, the Group acquired 100% of the shares of RWE Generation Belgium NV, the owner of a Cogeneration unit on the Oxide Antwerp site in Belgium for cash consideration of €70.4 million. The business consists of two 50MW units and an additional 35MW steam generator. All the steam and approximately one third of the electricity is consumed by the Group and a number of co-siting companies on the site in Antwerp. The remainder of the electricity is sold to the Belgian electricity grid, through a short term marketing contract with the previous owner RWE. This acquisition forms part of the Chemical Intermediates segment and is defined as a business under IFRS 3.

Effect of the acquisition on individual assets and liabilities

Acquiree's provisional net assets at acquisition:	Provisional fair values recognised on acquisition
	€m
Property, plant and equipment.....	34.4
Inventories.....	1.0
Trade and other receivables.....	0.1
Cash and cash equivalents.....	41.9
Trade and other payables.....	(7.0)
Net identifiable assets and liabilities	70.4
Consideration paid:	
Cash	70.4
Difference between consideration and provisional net assets acquired	-

For the ten month period since March 1, 2019, the acquired business contributed revenue of €123.5 million and an EBITDA of €14.3 million. If the acquisition had occurred on January 1, 2019, management estimates that the business would have contributed revenues of €148.5 million and EBITDA €17.1 million.

Acquisition of assets in the current year

Shale oil and gas assets

In April 2019 the Group purchased 104 active oil and gas wells and three non-active oil and gas wells located in the Giddings Fields in Texas USA. In addition to the purchase of the wells the Group acquired all acreage associated with each well. The total cash consideration for the assets was €27.2 million which included €24.4 million in respect of intangible well rights, €2.6 million relating to property, plant and equipment and €0.2 million relating to inventories.

Updates to prior years

WL Plastics

On November 1, 2016 the Group acquired 100% of the shares of WLP Holding Corporation, one of the largest high density polyethylene (HDPE) pipe manufacturers in North America for an initial consideration of €162.1 million. The business is headquartered in Fort Worth, Texas with production facilities in Kentucky, South Dakota, Utah, Texas, and Wyoming. WL Plastics has over 500 million pounds of annual production capacity and provides HDPE pipe for use in oil, gas, industrial, mining, conduit, and municipal water and sewer applications. This acquisition forms part of the O&P North America segment.

During the year ended December 31, 2019 the Group paid a further €15.0 million (2018: €7.4 million, 2017: €2.5 million) which was the third instalment of the contingent consideration which was subject to the acquired business achieving certain targets over a three year period. During the year ended December 31, 2017 the Group updated its deferred consideration assessment by €9.4 million.

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3. ACQUISITIONS (continued)

Effect of the acquisition on individual assets and liabilities

Acquiree's net assets at acquisition:	Provisional values recognised on acquisition	2017 revaluation updates	Final values recognised on acquisition
	€m	€m	€m
Property, plant and equipment.....	84.6	-	84.6
Intangible assets	22.6	-	22.6
Inventories.....	20.0	-	20.0
Trade and other receivables.....	22.6	-	22.6
Cash and cash equivalents.....	10.1	-	10.1
Trade and other payables.....	(33.9)	-	(33.9)
Deferred tax liabilities.....	(25.0)	-	(25.0)
Net identifiable assets and liabilities	101.0	-	101.0
Consideration paid:			
Cash	135.4	2.5	137.9
Deferred consideration	26.7	9.4	36.1
Total consideration paid	162.1	11.9	174.0
Differences between consideration and provisional net assets acquired	61.1	11.9	73.0

The difference between consideration and net assets acquired has been recognised as goodwill within intangible assets in Note 11.

4. EXCEPTIONAL ITEMS

	2019	2018	2017
	€m		
Exceptional administrative expenses.....	48.1	-	-
Exceptional finance costs.....	11.7	-	44.1

Exceptional administrative expenses

In December 2019 the Group took the decision to close the Nitriles facility at Seal Sands, United Kingdom. Poor operating performance and uneconomic capital expenditure requirements to meet safety and environmental obligations led to the decision. As a result an exceptional administrative charge of €35.1 million was incurred for closure costs including severance and outplacement expenses, together with decommissioning and demolition costs. In addition, tangible fixed assets at the facility of €33.3 million have been impaired (see Note 10).

An exceptional administrative charge of €13.0 million was also incurred during 2019 relating to the settlement of an intellectual property dispute in respect of the former Technologies business.

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4. EXCEPTIONAL ITEMS (continued)

Exceptional finance costs

In April 2019 following the early redemption of the Senior Secured Notes due 2023, an exceptional finance cost of €11.7 million was recognised which included an early prepayment premium of €7.7 million and the write-off of deferred issue costs associated with the redeemed Notes of €4.0 million.

In February 2017, the Group completed a refinancing of the Senior Secured Term Loans and the redemption of the Senior Notes due 2019. The Group has assessed that the refinancing of the Senior Secured Term Loans represented a substantial modification and resulted in the extinguishment of the existing debt. As a result the existing debt has been derecognised and the modified debt recognised at fair value. Due to the substantial modification of the Senior Secured Term Loans, the unamortised issue costs of €23.6 million at this date were written off as exceptional finance costs. Following the early redemption of the Senior Notes due 2019, an exceptional finance cost of €20.5 million has been recognised, which includes an early prepayment premium of €16.7 million and the write-off of deferred issue costs associated with the redeemed Notes of €3.8 million.

5. OPERATING PROFIT

Included in operating profit are the following:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Exceptional costs – included in administrative expenses	48.1	-	-
Research and development expensed as incurred.....	40.0	29.8	31.6
Amortisation of other intangible assets	3.4	13.2	13.9
Amortisation of government grants.....	(9.6)	(2.9)	(4.4)
Expenses relating to short-term leases.....	31.1	-	-
Expenses relating to leases of low value assets	0.6	-	-
Expenses relating to variable lease payments not included in the measurement of the lease liability	12.3	-	-
Income from sub-leasing of right-of-use assets	(0.2)	-	-
Depreciation and impairment of property, plant and equipment:			
Owned assets.....	527.5	456.0	454.4
Right-of-use assets	154.3	-	-
Finance leased assets.....	-	0.1	0.2
Operating lease rental charges:			
Plant, machinery and equipment	-	61.2	59.6
Other	-	87.0	78.1

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5. OPERATING PROFIT (continued)

Auditors' remuneration:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Audit of these financial statements.....	0.5	0.7	0.7
Amounts receivable by auditors and their associates in respect of:			
Audit of financial statements of subsidiaries pursuant to legislation.....	3.2	2.5	2.4
Other services relating to taxation.....	0.3	2.2	1.7
Services relating to corporate finance transactions.....	-	0.1	0.1
All other services.....	1.2	0.7	0.2
	<u>5.2</u>	<u>6.2</u>	<u>5.1</u>

The total in 2019 includes fees paid to Deloitte Luxembourg and its network firms worldwide for the audit of the consolidated financial statements and the audits of the financial statements of the Company and many of its worldwide subsidiaries. Auditors' remuneration for services provided during the year ended December 31, 2018 and 2017 relates to amounts paid to PricewaterhouseCoopers.

6. STAFF NUMBERS AND COSTS

The monthly average number of persons employed by the Group (including any divestitures up to the date of disposal and any acquisitions from the date of acquisition) during the year, analysed by category, was as follows:

	<u>Number of employees</u>		
	<u>2019</u>	<u>2018</u>	<u>2017</u>
Operations.....	5,758	5,477	5,228
Administration.....	1,539	1,372	1,394
Research and development.....	167	360	280
	<u>7,464</u>	<u>7,209</u>	<u>6,902</u>

The aggregate payroll costs of these persons were as follows:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Wages and salaries.....	774.4	699.4	681.1
Social security costs.....	101.7	90.8	93.1
Expenses related to defined contribution pension plans.....	23.0	23.3	16.9
Expenses related to defined benefit pension plans.....	44.6	42.8	47.8
	<u>943.7</u>	<u>856.3</u>	<u>838.9</u>

7. DIRECTORS' REMUNERATION

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Salaries and other short term benefits.....	<u>1.6</u>	<u>1.5</u>	<u>1.3</u>

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8. FINANCE INCOME AND COSTS

Recognised in income statement

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Finance income			
Interest income on bank balances.....	11.8	17.4	6.7
Other interest receivable.....	<u>66.4</u>	<u>66.8</u>	<u>71.8</u>
Total interest income on financial assets not at fair value through profit or loss.....	78.2	84.2	78.5
Exchange movements.....	6.8	15.3	408.1
Net fair value gain on derivatives.....	-	12.8	-
Dividend income.....	<u>6.0</u>	<u>5.0</u>	<u>5.3</u>
Total finance income.....	<u>91.0</u>	<u>117.3</u>	<u>491.9</u>
Finance costs			
Interest payable on senior notes.....	97.1	101.2	103.9
Interest payable on bank loans and overdrafts.....	123.5	111.6	159.5
Interest payable on securitisation.....	10.3	8.9	8.2
Amortisation of issue costs.....	7.9	6.2	6.0
Interest payable on lease liabilities.....	48.5	-	-
Other finance charges.....	7.4	6.5	7.7
Exchange movements.....	21.1	148.3	45.2
Net fair value loss on derivatives.....	95.4	-	9.0
Interest on employee benefit liabilities.....	14.0	13.4	15.7
Borrowing costs capitalised in property, plant and equipment.....	<u>(4.1)</u>	<u>(1.0)</u>	<u>-</u>
Total finance costs before exceptional items.....	421.1	395.1	355.2
Exceptional finance cost (see Note 4).....	<u>11.7</u>	<u>-</u>	<u>44.1</u>
Total finance costs.....	<u>432.8</u>	<u>395.1</u>	<u>399.3</u>
Net finance costs/(income).....	<u>341.8</u>	<u>277.8</u>	<u>(92.6)</u>

Net gains and losses on financial instruments are included in Note 25.b.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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9. TAX CHARGE

Taxation recognised in the consolidated income statement

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Current tax expense			
Current year.....	191.5	268.1	362.5
Adjustments in respect of prior years.....	<u>(128.6)</u>	<u>38.1</u>	<u>(13.0)</u>
Current tax expense.....	<u>62.9</u>	<u>306.2</u>	<u>349.5</u>
Deferred tax expense			
Origination and reversal of temporary differences.....	30.4	(23.9)	43.8
Effect of rate change.....	-	-	(69.0)
Adjustments in respect of prior years.....	<u>123.0</u>	<u>(3.4)</u>	<u>(22.8)</u>
Deferred tax charge/(credit) (see Note 16).....	<u>153.4</u>	<u>(27.3)</u>	<u>(48.0)</u>
Total tax charge.....	<u>216.3</u>	<u>278.9</u>	<u>301.5</u>

Reconciliation of effective tax rate

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Profit before taxation.....	<u>939.6</u>	<u>1,474.2</u>	<u>2,299.8</u>
Tax on above using the Luxembourg corporation tax rate of 24.94% (2018: 26.01%), 2017: 27.08%).....	234.3	383.4	622.8
Non-deductible expenses/tax exempt revenue.....	66.1	19.3	(25.5)
Effect of tax rates in foreign jurisdictions.....	(83.7)	(158.0)	(189.3)
Utilisation of tax losses brought forward.....	5.2	(0.5)	(1.7)
Effect of rate change.....	-	-	(69.0)
Adjustments in respect of prior years.....	<u>(5.6)</u>	<u>34.7</u>	<u>(35.8)</u>
Total tax charge.....	<u>216.3</u>	<u>278.9</u>	<u>301.5</u>

The 2017 credit of €69.0 million from the effect of a rate change mainly results from the remeasurement of deferred tax liabilities following US tax reform in December 2017, which included a substantial reduction in US corporate tax rate from 35% to 21%.

Taxation recognised in other comprehensive income/(expense)

	<u>2019</u>			<u>2018</u>			<u>2017</u>		
	<u>Gross</u>	<u>Tax</u>	<u>Net</u>	<u>Gross</u>	<u>Tax</u>	<u>Net</u>	<u>Gross</u>	<u>Tax</u>	<u>Net</u>
	€m								
Foreign exchange translation differences.....	(1.9)	-	(1.9)	(23.3)	-	(23.3)	84.5	-	84.5
Net gain/(loss) on hedge of net investment in foreign operations.....	93.4	(5.4)	88.0	297.7	(26.4)	271.3	(731.4)	93.9	(637.5)
Remeasurement of post employment benefit obligations.....	<u>(184.1)</u>	<u>51.8</u>	<u>(132.3)</u>	<u>(32.7)</u>	<u>10.0</u>	<u>(22.7)</u>	<u>101.9</u>	<u>(19.6)</u>	<u>82.3</u>
Total.....	<u>(92.6)</u>	<u>46.4</u>	<u>(46.2)</u>	<u>241.7</u>	<u>(16.4)</u>	<u>225.3</u>	<u>(545.0)</u>	<u>74.3</u>	<u>(470.7)</u>

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10. PROPERTY, PLANT AND EQUIPMENT

	Land and buildings	Plant & equipment Fixtures and fittings	Under construction	Oil & Gas	Right- of-use assets	Total
Cost			€m			
Balance at 1 January 2017.....	632.8	8,257.3	461.7	-	-	9,351.8
Additions.....	24.7	337.2	611.0	-	-	972.9
Disposals.....	(3.9)	(58.6)	(0.2)	-	-	(62.7)
Transfers.....	32.9	184.8	(217.7)	-	-	-
Effect of movements in foreign exchange.....	(42.8)	(486.7)	(74.8)	-	-	(604.3)
Balance at 31 December 2017.....	643.7	8,234.0	780.0	-	-	9,657.7
Additions.....	20.6	400.6	734.7	-	-	1,155.9
Disposals.....	(2.1)	(52.2)	-	-	-	(54.3)
Transfers.....	32.7	160.1	(192.8)	-	-	-
Effect of movements in foreign exchange.....	6.7	115.5	48.6	-	-	170.8
Balance at 31 December 2018.....	701.6	8,858.0	1,370.5	-	-	10,930.1
Impact of adopting IFRS 16 (see Note 1).....	(11.1)	(56.5)	-	-	967.0	899.4
Business acquisition.....	-	30.1	4.3	2.6	-	37.0
Additions.....	5.0	256.4	1,115.5	0.1	165.5	1,542.5
Disposals.....	(1.9)	(39.3)	-	-	(3.5)	(44.7)
Transfers.....	54.6	711.0	(762.0)	3.2	-	6.8
Modifications.....	-	-	-	-	40.7	40.7
Effect of movements in foreign exchange.....	11.0	98.0	39.6	-	8.8	157.4
Balance at 31 December 2019.....	759.2	9,857.7	1,767.9	5.9	1,178.5	13,569.2
Accumulated depreciation and impairment						
Balance at 1 January 2017.....	258.7	5,085.7	-	-	-	5,344.4
Depreciation charge for the year.....	17.0	437.4	-	-	-	454.4
Disposals.....	(0.2)	(56.8)	-	-	-	(57.0)
Effect of movements in foreign exchange.....	(15.7)	(323.8)	-	-	-	(339.5)
Balance at 31 December 2017.....	259.8	5,142.5	-	-	-	5,402.3
Depreciation charge for the year.....	18.3	437.7	-	-	-	456.0
Disposals.....	(2.1)	(52.2)	-	-	-	(54.3)
Effect of movements in foreign exchange.....	2.2	77.6	-	-	-	79.8
Balance at 31 December 2018.....	278.2	5,605.6	-	-	-	5,883.8
Impact of adopting IFRS 16 (see Note 1).....	(7.5)	(56.5)	-	-	64.0	-
Depreciation charge for the year.....	23.2	471.0	-	-	154.3	648.5
Impairment charge for the year.....	0.7	32.6	-	-	-	33.3
Disposals.....	(1.9)	(38.9)	-	-	(3.5)	(44.3)
Effect of movements in foreign exchange.....	3.5	79.3	-	-	0.3	83.1
Balance at 31 December 2019.....	296.2	6,093.1	-	-	215.1	6,604.4
Net book value						
At 31 December 2017.....	383.9	3,091.5	780.0	-	-	4,255.4
At 31 December 2018.....	423.4	3,252.4	1,370.5	-	-	5,046.3
At 31 December 2019.....	463.0	3,764.6	1,767.9	5.9	963.4	6,964.8

Included in 2019 is an impairment charge of €33.3 million in respect of tangible fixed assets at the Nitriles facility at Seal Sands, United Kingdom following a decision to close the site in December 2019 due to poor operating performance and uneconomic capital expenditure requirements to meet safety and environmental obligations (see Note 4).

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10. PROPERTY, PLANT AND EQUIPMENT (continued)

Leased plant and machinery

The Group leases many assets including land and buildings, vessels, storage and transportation infrastructure, machinery and IT equipment which are classified as right-of-use assets. Prior to 1 January 2019 net book values of €3.6 million in 2018 and €3.8 million in 2017 were included in land and buildings and plant, equipment, fixture and fittings in respect of assets held under hire purchase and finance leases.

More information regarding the right-of-use are presented below.

Right-of-use (ROU) assets

	<u>Land and buildings</u>	<u>Plant & equipment Fixtures and fittings</u>	<u>ROU Total</u>
Cost			
Impact of adopting IFRS 16 (see Note 1).....	128.7	838.3	967.0
Additions.....	40.0	125.5	165.5
Disposals.....	(0.8)	(2.7)	(3.5)
Modifications.....	-	40.7	40.7
Effect of movements in foreign exchange.....	1.3	7.5	8.8
Balance at 31 December 2019.....	<u>169.2</u>	<u>1,009.3</u>	<u>1,178.5</u>
Accumulated depreciation and impairment			
Impact of adopting IFRS 16 (see Note 1).....	7.5	56.5	64.0
Depreciation charge for the year.....	8.5	145.8	154.3
Disposals.....	(0.8)	(2.7)	(3.5)
Effect of movements in foreign exchange.....	0.1	0.2	0.3
Balance at 31 December 2019.....	<u>15.3</u>	<u>199.8</u>	<u>215.1</u>
Net book value			
At 31 December 2018.....	-	-	-
At 31 December 2019.....	<u>153.9</u>	<u>809.5</u>	<u>963.4</u>

See Note 26 for the leased obligations on right-of-use assets.

Property, plant and equipment under construction

During 2019, expenditure at the Chocolate Bayou site in the USA on the Linear Alpha Olefins (LAO) project as well as expenditure on a cogeneration project and barge dock was transferred to other classes of property, plant and equipment.

Additions to assets under construction during 2019 included further expenditure at the Chocolate Bayou site in the USA on a furnace replacement project, a cogeneration project, a High Viscosity Poly Alpha Olefins (PAO) project, a barge dock and a debottleneck of one of the crackers. There was also further expenditure at the Köln, Germany site on a cogeneration project.

During 2018, expenditure in the USA on cogeneration equipment and a turnaround on an olefin unit along with expenditure on an EO storage project in Antwerp, Belgium was transferred to other classes of property, plant and equipment.

Additions to assets under construction during 2018 included further expenditure in the USA on the Linear Alpha Olefins (LAO) and High Viscosity Poly Alpha Olefins (PAO) projects as well as additional expenditure at Chocolate Bayou, USA on a cogeneration project, furnace replacement project and cracker

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10. PROPERTY, PLANT AND EQUIPMENT (continued)

debottleneck. There was also further expenditure at the Köln, Germany site on a cogeneration project, new office buildings and a lifecycle project. There was also expenditure at the Antwerp, Belgium site in respect of a new alkox unit.

During 2017 infrastructure relating to the Gemini HDPE project were all transferred to other classes of property, plant and equipment after the new plant became fully operational in the fourth quarter of 2017.

Additions to assets under construction during 2017 included further expenditure in the USA on the Linear Alpha Olefins (LAO) and High Viscosity Poly Alpha Olefins (PAO) projects as well as additional expenditure on a cogeneration project at Chocolate Bayou, USA and a cracker turnaround in Köln, Germany. There was also significant expenditure at the Köln, Germany site on a cogeneration project, new office buildings and a lifecycle project.

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11. INTANGIBLE ASSETS

	Intellectual property rights	Customer relationships	Other	Goodwill	Total
Cost			€m		
Balance at 1 January 2017.....	152.3	65.0	33.0	697.0	947.3
Additions.....	-	0.1	17.8	-	17.9
Disposals.....	-	-	(7.0)	-	(7.0)
Business acquisition.....	-	-	-	11.9	11.9
Effect of movements in foreign exchange.....	(8.6)	(7.7)	0.8	(37.2)	(52.7)
Balance at 31 December 2017.....	143.7	57.4	44.6	671.7	917.4
Additions.....	-	-	18.5	-	18.5
Disposals.....	(51.1)	-	(6.0)	-	(57.1)
Effect of movements in foreign exchange.....	0.5	2.5	1.8	12.3	17.1
Balance at 31 December 2018.....	93.1	59.9	58.9	684.0	895.9
Additions.....	-	-	37.3	-	37.3
Disposals.....	-	(4.5)	(14.0)	-	(18.5)
Business acquisition.....	-	-	24.4	-	24.4
Effect of movements in foreign exchange.....	0.2	1.2	7.9	6.0	15.3
Balance at 31 December 2019.....	93.3	56.6	114.5	690.0	954.4
Accumulated amortisation and impairment					
Balance at 1 January 2017.....	151.8	12.3	11.2	8.1	183.4
Amortisation for the year.....	0.1	13.4	0.4	-	13.9
Effect of movements in foreign exchange.....	(8.6)	(2.3)	(0.6)	-	(11.5)
Balance at 31 December 2017.....	143.3	23.4	11.0	8.1	185.8
Amortisation for the year.....	0.1	12.7	0.4	-	13.2
Disposals.....	(51.1)	-	-	-	(51.1)
Effect of movements in foreign exchange.....	0.5	1.5	1.2	-	3.2
Balance at 31 December 2018.....	92.8	37.6	12.6	8.1	151.1
Amortisation for the year.....	0.1	2.3	1.0	-	3.4
Effect of movements in foreign exchange.....	0.2	0.7	-	-	0.9
Balance at 31 December 2019.....	93.1	40.6	13.6	8.1	155.4
Net book value					
At 31 December 2017.....	0.4	34.0	33.6	663.6	731.6
At 31 December 2018.....	0.3	22.3	46.3	675.9	744.8
At 31 December 2019.....	0.2	16.0	100.9	681.9	799.0

Other intangible assets include shale oil and gas licences, non-compete agreements, licence fees and environmental certificates.

Amortisation charge

The amortisation charge is recognised in administrative expenses in the consolidated income statement.

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11. INTANGIBLE ASSETS (continued)

Impairment

Goodwill has been allocated to cash generating units (CGU) or groups of cash generating units as follows:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
O&P Europe.....	246.2	246.2	246.2
O&P North America	355.2	349.2	336.9
Chemical Intermediates.....	<u>80.5</u>	<u>80.5</u>	<u>80.5</u>
Total	<u>681.9</u>	<u>675.9</u>	<u>663.6</u>

The recoverable amount is based on the value in use of each operating segment before aggregation based on the latest board approved five year plan. The forecasts are based on current performance and management's assumptions regarding the future development of individual parameters including raw material prices and profit margins, utilising available market pricing forecasts. Future assumptions regarding market demand are based on external macroeconomic sources and specific data relevant to the petrochemical industry and management's knowledge of the local markets in which it operates.

The cash flows after the plan period are based on an average of each of the years in the five year plan to take account of the cyclical nature of the industry extrapolated using long term growth rates as set out in the table below.

No impairment charge has been recorded in these financial statements as a result of the annual impairment test.

The key assumptions underlying the value in use calculation are shown below:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Period on which management approved forecasts are based.....	5 years	5 years	5 years
Discount rate	8.5%	8.5%	9.0%
Growth rate	<u>3.0%</u>	<u>3.0%</u>	<u>3.0%</u>

A terminal value is calculated based on the average cash flows over the five year forecasting period assuming compound growth of 3% and is discounted over the expected lives of the assets.

When determining the discount rate the pre-tax weighted average cost of capital of the Group is considered at each respective period end.

The growth rate used includes inflationary growth across our various markets.

The estimated recoverable amount exceeded the carrying amount for all cash generating units.

Sensitivity analysis on the recoverable amount was performed based on a 1% change in the discount rate and a 1% change in the growth rate, both of which are considered reasonable. Neither of these changes resulted in the recoverable amount being lower than the carrying amount. After applying the sensitivities the business unit with the least amount of headroom is the Nitriles business, which has an excess recoverable amount of €135 million over the carrying amount.

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12. INVESTMENTS

12a Investments In Equity–Accounted Investees

	<u>Joint ventures</u>
	<u>€m</u>
At 1 January 2017	161.7
Additions.....	57.8
Share of profits retained	143.5
Exchange adjustments	(11.9)
At 31 December 2017	351.1
Additions.....	12.9
Share of losses retained	(66.6)
Exchange adjustments	4.6
At 31 December 2018	302.0
Share of profits retained	67.0
Exchange adjustments	2.4
At 31 December 2019	371.4

Joint ventures

On July 1, 2011 the group restructured the Refining business into a new joint venture between PetroChina and INEOS Investments (Jersey) Limited ('II(J)L'), a related party. II(J)L is held under common control by our controlling shareholders. The consideration received by the Group for the disposal consisted of cash consideration of \$1.015 billion received from PetroChina for a 50% interest in the business and an investment in non-voting ordinary shares in II(J)L for the other 50% interest in the business.

The Group retains an economic interest in the Refining business by virtue of its investment in II(J)L. The results of the Refining business are reported within the share of profit/(loss) of associates and joint ventures using the equity accounting method by virtue of the Group's effective control of II(J)L.

In July 2014 the Group set up a joint venture with Sasol to build and operate an HDPE plant at the Battleground site in Texas, USA. The plant became fully operational in the fourth quarter of 2017. During 2018 €12.9 million (2017: €57.8 million) was invested into the joint venture.

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12. INVESTMENTS (continued)

Details of investments in joint ventures are set out below:

<u>Company</u>	<u>Class of shares held</u>	<u>Place of business and country of incorporation</u>	<u>Percentage held</u>	<u>Principal activities</u>
Petroineos Refining Limited	Ordinary	Lavéra, France Grangemouth, Scotland	50.1%	Refining
Petroineos Trading Limited	Ordinary	Lavéra, France Grangemouth, Scotland	49.9%	Refining
Ineos Infrastructure (Grangemouth) Limited	Ordinary	Grangemouth, Scotland	75%	Refining
Ineos Gemini HDPE Co LLC	Ordinary	Texas, USA	50%	Chemicals

Summary aggregated financial information for equity accounted joint ventures are as follows:

Refining joint ventures	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Current assets	4,224.3	2,615.0	2,672.2
Long-term assets	2,960.1	2,660.2	2,116.4
Current liabilities.....	(5,526.1)	(3,889.1)	(3,501.6)
Long-term liabilities.....	(325.0)	(198.5)	(219.4)
Cash (outflow)/inflow	(811.5)	(1,287.9)	968.1
Revenue.....	27,867.0	26,871.4	23,570.4
Expenses	<u>(27,722.9)</u>	<u>(26,981.4)</u>	<u>(23,257.9)</u>
Gemini HDPE joint venture	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Current assets	15.4	13.4	9.9
Long-term assets	561.9	564.8	544.7
Current liabilities.....	(32.4)	(29.6)	(24.6)
Long-term liabilities.....	(307.5)	(323.9)	(322.5)
Cash outflow	0.9	-	(22.9)
Revenue.....	58.5	49.4	4.4
Expenses	<u>(101.7)</u>	<u>(52.2)</u>	<u>(9.8)</u>

12.b Investments in Subsidiary Undertakings

The directors consider that to give full particulars of all subsidiary undertakings would lead to a statement of excessive length.

The directors believe the carrying value of the investments is supported by the underlying net assets of the subsidiaries.

The following information relates to the principal subsidiary undertakings of the Company.

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12. INVESTMENTS (continued)

Company	Country of incorporation and operation	Percentage holding	Principal activity
INEOS Luxembourg I S.A.*	Luxembourg	100%	Holding Company
INEOS Luxembourg II S.A.	Luxembourg	100%	Holding Company
INEOS Group AG	Switzerland	100%	Holding Company
INEOS Holdings Limited.....	England and Wales	100%	Holding Company
INEOS European Holdings Limited.....	England and Wales	100%	Holding Company
INEOS US Finance LLC.....	USA	100%	Finance
INEOS Finance Plc	England and Wales	100%	Finance
INEOS Treasury (UK) Limited.....	England and Wales	100%	Finance
INEOS Europe AG.....	Switzerland	100%	Chemicals
INEOS Oxide Limited.....	England and Wales	100%	Chemicals
INEOS NV	Belgium	100%	Chemicals
INEOS Belgium NV	Belgium	100%	Chemicals
INEOS Phenol Belgium NV.....	Belgium	100%	Chemicals
INEOS Italia Srl	Italy	100%	Chemicals
INEOS Phenol GmbH.....	Germany	100%	Chemicals
INEOS Americas LLC	USA	100%	Chemicals
INEOS Manufacturing Deutschland GmbH.....	Germany	100%	Chemicals
INEOS Köln GmbH.....	Germany	100%	Chemicals
INEOS France SAS.....	France	100%	Chemicals
INEOS Sales (UK) Limited.....	England and Wales	100%	Chemicals
INEOS Manufacturing Belgium NV	Belgium	100%	Chemicals
INEOS Manufacturing Belgium II NV	Belgium	100%	Chemicals
INEOS Feluy SPRL	Belgium	100%	Chemicals
INEOS Sales Belgium NV	Belgium	100%	Chemicals
INEOS Sales Italia s.r.l.	Italy	100%	Chemicals
INEOS Singapore Pte Limited	Singapore	100%	Chemicals
INEOS USA LLC	USA	100%	Chemicals
INEOS Canada Company.....	Canada	100%	Chemicals
INEOS Canada Partnership.....	Canada	100%	Chemicals
INEOS Bamble AS	Norway	100%	Chemicals
INEOS Nitriles (UK) Limited	England and Wales	100%	Chemicals
INEOS Manufacturing (Hull) Limited	England and Wales	100%	Chemicals
INEOS Technologies (Vinyls) Limited.....	England and Wales	100%	Chemicals
INEOS Technologies France SAS.....	France	100%	Chemicals
INEOS US Sales Company	USA	100%	Chemicals
INEOS Nitriles USA LLC.....	USA	100%	Chemicals
INEOS Oligomers USA LLC.....	USA	100%	Chemicals
INEOS Technologies USA LLC	USA	100%	Chemicals
INEOS Technologies Italia S.r.l.....	Italy	100%	Chemicals
INEOS Rafnes AS.....	Norway	100%	Chemicals
WLP Holding Corporation	USA	100%	Manufacturer

* Held directly by the Company

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13. FINANCIAL ASSETS AT FAIR VALUE THROUGH PROFIT OR LOSS (PREVIOUSLY: OTHER INVESTMENTS)

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Balance brought forward	251.2	238.5	262.2
Amount restated in opening retained earnings due to impact of new IFRS 9 accounting standard	-	(6.1)	-
At 1 January	251.2	232.4	262.2
Interest receivable	2.2	8.6	8.1
Exchange adjustments	4.5	10.2	(31.8)
Disposals	(257.9)	-	-
At 31 December	<u>-</u>	<u>251.2</u>	<u>238.5</u>

Before being disposed the Group held a non-voting preferred partnership interest in Ineos Investments Partnership, an entity held under common control by the Group's ultimate shareholders, which owned 24% of the share capital of the PQ Corporation, a silicas business incorporated in the USA and listed on the New York stock exchange. The Group previously held this investment at amortised cost under IAS 39; however in 2018 as a result of IFRS 9 it was designated as a financial asset at fair value through profit or loss. The remeasurement of this investment under IFRS 9 resulted in an adjustment to opening equity of €6.1 million as at January 1, 2018.

In 2019 the Group disposed of its preferential interest in INEOS Investments Partnership following the sale by INEOS Investments Partnership of its assets (shares in PQ Corporation) to INEOS Limited, a related party, for €260.5 million (\$296.5 million) which resulted in a profit on disposal of €2.6 million.

14. FINANCIAL ASSETS AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME (PREVIOUSLY: OTHER FINANCIAL ASSETS)

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Non-current			
Financial assets at fair value through comprehensive income (see below and Note 25.a)	28.3	28.3	-
Available for sale financial assets (see below and Note 25.a)	-	-	28.3

Financial assets at fair value through other comprehensive income (previously other financial assets)

Financial assets at fair value through other comprehensive income include a 20.0% investment in Aethylen Rohrleitungs Gesellschaft ('ARG') mbH and Co. KG, a company registered in Germany whose principal activity is the transportation of ethylene via pipelines in Northern Europe and other investments.

In 2017 the investment in ARG mbH and Co. KG and other investments were classified as available for sale financial assets and recorded at amortised cost; however in 2018 under IFRS 9 the Group designated these investments as financial assets at fair value through other comprehensive income. These investments comprise of shares in private limited companies. The carrying value of these financial assets at fair value through comprehensive income was €28.3 million at December 31, 2019 (2018: €28.3 million). A disposal of these investments is not currently anticipated.

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15. DERIVATIVE FINANCIAL INSTRUMENTS

	2019	2018	2017
		€m	
Current asset			
Derivative commodity contracts classified as fair value through profit or loss (see Note 25.a)	15.3	10.1	-
	2019	2018	2017
		€m	
Non-current liabilities			
Derivative commodity contracts classified as fair value through profit or loss (see Note 25.a)	-	0.4	2.3
Current liabilities			
Derivative commodity contracts classified as fair value through profit or loss (see Note 25.a)	59.5	-	0.2

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16. DEFERRED TAX ASSETS AND LIABILITIES

Recognised deferred tax assets and liabilities

Deferred tax assets and liabilities are attributable to the following:

	2019		
	Assets	Liabilities	Total
		€m	
Property, plant and equipment.....	-	512.4	512.4
Employee benefits.....	(262.8)	-	(262.8)
Tax value of loss carry-forwards.....	(70.5)	-	(70.5)
Other.....	(72.7)	-	(72.7)
Tax (assets)/liabilities.....	(406.0)	512.4	106.4
Set off of tax.....	221.2	(221.2)	-
Net tax (assets)/liabilities.....	<u>(184.8)</u>	<u>291.2</u>	<u>106.4</u>

	2018		
	Assets	Liabilities	Total
		€m	
Property, plant and equipment.....	-	249.6	249.6
Employee benefits.....	(206.6)	-	(206.6)
Tax value of loss carry-forwards.....	(51.1)	-	(51.1)
Other.....	-	12.9	12.9
Tax (assets)/liabilities.....	(257.7)	262.5	4.8
Set off of tax.....	56.1	(56.1)	-
Net tax (assets)/liabilities.....	<u>(201.6)</u>	<u>206.4</u>	<u>4.8</u>

	2017		
	Assets	Liabilities	Total
		€m	
Property, plant and equipment.....	-	254.8	254.8
Employee benefits.....	(189.8)	-	(189.8)
Tax value of loss carry-forwards.....	(50.6)	-	(50.6)
Other.....	-	27.7	27.7
Tax (assets)/liabilities.....	(240.4)	282.5	42.1
Set off of tax.....	80.2	(80.2)	-
Net tax (assets)/liabilities.....	<u>(160.2)</u>	<u>202.3</u>	<u>42.1</u>

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16. DEFERRED TAX ASSETS AND LIABILITIES (continued)

Movement in deferred tax

	Property, plant and equipment	Employee benefits	Tax value of loss carry- forward utilised	Other	Total
			€m		
At 1 January 2017	371.8	(225.6)	(49.7)	(26.0)	70.5
Recognised in profit or loss.....	(117.0)	16.2	(0.9)	53.7	(48.0)
Recognised in other comprehensive income.....	-	19.6	-	-	19.6
At 31 December 2017	254.8	(189.8)	(50.6)	27.7	42.1
Recognised in profit or loss.....	(5.2)	(6.8)	(0.5)	(14.8)	(27.3)
Recognised in other comprehensive income.....	-	(10.0)	-	-	(10.0)
At 31 December 2018	249.6	(206.6)	(51.1)	12.9	4.8
Recognised in profit or loss.....	262.8	(4.4)	(19.4)	(85.6)	153.4
Recognised in other comprehensive income.....	-	(51.8)	-	-	(51.8)
At 31 December 2019	512.4	(262.8)	(70.5)	(72.7)	106.4

Deferred tax assets are recognised to the extent that the realisation of the related tax benefit through future taxable profits is probable based on an assessment of expected future profits modelled against the gross tax losses. The Group did not recognise gross deductible temporary differences of €95.9 million (2018: €12.0 million, 2017: €71.7 million).

The Group has not provided deferred tax in relation to temporary differences on its overseas subsidiaries or joint ventures as the Group can control the timing and realisation of these temporary differences, and it is probable that no material unprovided tax liability would arise.

17. INVENTORIES

	2019	2018	2017
		€m	
Raw materials and consumables.....	430.4	444.4	439.7
Work in progress.....	19.5	22.1	22.8
Finished goods	777.1	941.2	784.0
	1,227.0	1,407.7	1,246.5

Raw materials, consumables and changes in finished goods and work in progress recognised as cost of sales in the year amounted to €7,175.0 million (2018: €8,605.6 million 2017: €8,634.3 million). The net write-down of inventories to net realisable value amounted to €0.5 million (2018: €2.6 million, €2017: €5.9 million) after the reversal of previous write downs of €0.2 million (2018: €nil, 2017: €0.1 million).

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18. TRADE AND OTHER RECEIVABLES

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Current			
Trade receivables	1,008.6	1,177.5	1,236.3
Amounts due from related parties	300.8	309.5	283.3
Other receivables.....	150.7	143.8	124.1
Prepayments.....	84.8	117.4	69.2
	<u>1,544.9</u>	<u>1,748.2</u>	<u>1,712.9</u>
Non-current			
Amounts due from related parties	727.8	702.2	927.9
Other receivables.....	2.1	1.0	1.1
Prepayments.....	12.5	26.5	28.4
	<u>742.4</u>	<u>729.7</u>	<u>957.4</u>

Credit quality of financial assets and impairment losses

The ageing of trade and other receivables at the end of the reporting period and the expected credit loss rate (ECLR) was:

	<u>Trade receivables</u>			<u>Amounts due from related parties</u>			<u>Other receivables</u>		
	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>
	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>	<u>2019</u>
	€m	€m	%	€m	€m	%	€m	€m	%
Not past due.....	868.0	-	0.0	1,028.6	-	0.0	151.2	-	0.0
Past due 0-30 days	126.2	(1.4)	1.1	-	-	-	0.6	-	0.0
Past due 31-90 days	17.2	(2.5)	14.5	-	-	-	-	-	0.0
More than 90 days	10.7	(9.6)	89.7	-	-	-	1.0	-	0.0
	<u>1,022.1</u>	<u>(13.5)</u>	<u>1.3</u>	<u>1,028.6</u>	<u>-</u>	<u>0.0</u>	<u>152.8</u>	<u>-</u>	<u>0.0</u>

	<u>Trade receivables</u>			<u>Amounts due from related parties</u>			<u>Other receivables</u>		
	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>
	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>	<u>2018</u>
	€m	€m	%	€m	€m	%	€m	€m	%
Not past due.....	1,055.6	(4.7)	0.4	1,011.7	-	0.0	139.5	-	0.0
Past due 0-30 days	87.1	(0.6)	0.7	-	-	-	2.6	-	0.0
Past due 31-90 days	39.7	(0.2)	0.5	-	-	-	0.3	-	0.0
More than 90 days	12.0	(11.4)	95.0	-	-	-	2.4	-	0.0
	<u>1,194.4</u>	<u>(16.9)</u>	<u>1.4</u>	<u>1,011.7</u>	<u>-</u>	<u>0.0</u>	<u>144.8</u>	<u>-</u>	<u>0.0</u>

	<u>Trade receivables</u>			<u>Amounts due from related parties</u>			<u>Other receivables</u>		
	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>	<u>Gross</u>	<u>Impairment</u>	<u>ECLR</u>
	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>	<u>2017</u>
	€m	€m	%	€m	€m	%	€m	€m	%
Not past due.....	1,129.4	(14.5)	1.3	1,211.2	-	0.0	122.5	-	0.0
Past due 0-30 days	96.2	(2.4)	2.5	-	-	-	0.6	-	0.0
Past due 31-90 days	16.6	(0.3)	1.8	-	-	-	0.9	-	0.0
More than 90 days	32.0	(20.7)	64.7	-	-	-	1.2	-	0.0
	<u>1,274.2</u>	<u>(37.9)</u>	<u>3.0</u>	<u>1,211.2</u>	<u>-</u>	<u>0.0</u>	<u>125.2</u>	<u>-</u>	<u>0.0</u>

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18. TRADE AND OTHER RECEIVABLES (continued)

The accounts receivable not yet due after impairment losses as of the end of the reporting period are deemed to be collectible on the basis of established credit management processes such as regular analyses of the credit worthiness of our customers and external credit checks where appropriate for new customers (see Note 25.c). At December 31, 2017, 2018 and 2019 there were no significant trade, related party or other receivable balances not past due that were subsequently impaired.

Due to the global activities and diversified customer structure of the Group, there is no significant concentration of credit risk (2018: nil, 2017: nil).

During 2017, 2018 and 2019 there were no significant trade, related party or other receivable balances that were subject to renegotiation of terms. Credit enhancements are held in respect of trade and other receivables in the form of €nil (2018: €9.0 million, 2017: €17.7 million) of assets pledged as security against amounts owed to the Group of which €nil (2018: €3.9 million, 2017: €2.0 million) is in respect of amounts falling overdue.

Trade receivable balances totalling €770.0 million (2018: €921.2 million, 2017: €999.8 million) have been pledged as security against amounts drawn down under the Receivables Securitisation Facility, described in Note 19, totalling €297.1 million (2018: €287.8 million, 2017: €284.2 million). In accordance with IFRS 9 'Financial Instruments' the trade receivable balances pledged as security do not qualify for derecognition and are included within the trade receivable balances above.

The movement in the allowance for impairment in respect of trade receivables during the year was as follows:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Balance at 1 January.....	16.9	37.9	21.3
(Released)/additions.....	(3.4)	(21.5)	24.6
Utilised.....	-	-	(6.7)
Exchange.....	-	0.5	(1.3)
Balance at 31 December.....	<u>13.5</u>	<u>16.9</u>	<u>37.9</u>

The allowance account for trade receivables is used to record any impairment losses unless the Group is satisfied that no recovery of the amount owing is probable; at that point the amounts considered irrecoverable are written off against the trade receivables directly. As of January 1, 2018, IFRS 9 replaced the 'incurred loss' model in IAS 39 with a forward-looking 'expected credit loss' (ECL) model in assessing the recoverability of trade receivables. Due to the quality of the Group's trade receivables, and its low history of bad debts the application of IFRS 9 did not result in a material change to the allowance for impairment in respect of trade receivables. The impact was calculated considering past experience and management's estimate of future developments including the assessment of probability of default being relatively low. Management expects no considerable change in the future market situation. Consequently, the future credit losses in the ECL model are in the same range as the credit losses experienced in the past years. This is regarded as the future expectation of the inherent credit risk of the not impaired trade and other receivables outstanding. The Group reviews the assumptions of the ECL model on a yearly basis.

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18. TRADE AND OTHER RECEIVABLES (continued)

Credit risk of trade receivables

	2019
	€m
Low	925.2
Medium	85.3
High	11.6
Impairment allowance	(13.5)
	1,008.6

The credit risk grade is based on the analysis on both the quantitative and qualitative factors as detailed below:

- High: Customers under significant financial difficulty and customers for whom there is an uncertainty of payment based on knowledge of factors like insolvency, dispute. Any receivable more than 180 days past due should also be classified in this category.
- Medium: Any receivable between 90 and 180 days past due should be classified as medium risk unless qualitative factors indicate a higher credit risk.
- Low: Any receivable less than 90 days past due should be classified as low risk unless qualitative factors indicate a higher credit risk.

During the year the Group has not experienced a significant deterioration in the quality of receivable balances due to the current economic conditions.

There were no allowances made against amounts due from other receivables during the year (2018: €nil, 2017: €nil).

There were no allowances made against amounts due from related parties during the year (2018: €nil, 2017: €nil).

19. INTEREST-BEARING LOANS AND BORROWINGS

This note provides information about the contractual terms of the Group's interest-bearing loans and borrowings, which are measured at amortised cost. For more information about the Group's exposure to interest rate and foreign currency risk, see Note 25.f.

	2019	2018	2017
	€m		
Non-current liabilities			
Senior Secured Term Loans	3,428.6	3,432.6	3,404.4
Senior Secured Notes due 2026.....	762.1	-	-
Senior Secured Notes due 2025.....	545.6	544.9	544.2
Senior Secured Notes due 2023.....	-	765.8	764.8
Senior Notes due 2019	-	1,080.2	1,060.4
Senior Notes due 2024	1,090.4	-	-
Receivables Securitisation Facility.....	295.9	286.6	282.5
Koln CoGen Facility	96.0	120.0	-
Noretyl Facility	246.5	-	27.0
Schuldschein Facility	138.9	-	-
Finance lease liabilities	-	1.1	1.2
Other loans	0.8	10.3	10.4
	6,604.8	6,241.5	6,094.9

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Current liabilities		€m	
Current portion of borrowings under Senior Secured Term Loans.....	33.3	33.0	33.2
Noretyl Facility	-	26.9	26.9
Koln CoGen Facility	24.0	-	-
Inventory securitisation Facility	190.4	-	-
Other loans	0.3	1.1	2.8
Current portion of finance lease liabilities.....	-	0.1	0.1
	<u>248.0</u>	<u>61.1</u>	<u>63.0</u>
	Gross loans and borrowings	Issue costs	Net loans and borrowings
	2019	2019	2019
Gross debt and issue costs		€m	
Senior Secured Term Loans	3,470.9	(9.0)	3,461.9
Senior Secured Notes due 2026.....	770.0	(7.9)	762.1
Senior Secured Notes due 2025.....	550.0	(4.4)	545.6
Senior Notes due 2024	1,096.3	(5.9)	1,090.4
Receivables Securitisation Facility.....	297.1	(1.2)	295.9
Koln CoGen Facility	120.0	-	120.0
Noretyl Facility	250.0	(3.5)	246.5
Schuldschein Facility	141.0	(2.1)	138.9
Inventory Financing Facility	190.9	(0.5)	190.4
Other	1.1	-	1.1
Total	<u>6,887.3</u>	<u>(34.5)</u>	<u>6,852.8</u>
	Gross loans and borrowings	Issue costs	Net loans and borrowings
	2018	2018	2018
Gross debt and issue costs		€m	
Senior Secured Term Loans	3,476.7	(11.1)	3,465.6
Senior Secured Notes due 2023.....	770.0	(4.2)	765.8
Senior Secured Notes due 2025.....	550.0	(5.1)	544.9
Senior Notes due 2024	1,087.3	(7.1)	1,080.2
Receivables Securitisation Facility.....	287.8	(1.2)	286.6
Koln CoGen Facility	120.0	-	120.0
Noretyl Facility	27.5	(0.6)	26.9
Other	12.6	-	12.6
Total	<u>6,331.9</u>	<u>(29.3)</u>	<u>6,302.6</u>

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

	<u>Gross loans and borrowings</u>	<u>Issue costs</u>	<u>Net loans and borrowings</u>
	2017	2017	2017
	€m		
Senior Secured Term Loans	3,450.5	(12.9)	3,437.6
Senior Secured Notes due 2023.....	770.0	(5.2)	764.8
Senior Notes due 2019	550.0	(5.8)	544.2
Senior Notes due 2024	1,068.8	(8.4)	1,060.4
Receivables Securitisation Facility.....	284.2	(1.7)	282.5
Noretyl Facility	55.0	(1.1)	53.9
Other	14.5	-	14.5
Total	<u>6,193.0</u>	<u>(35.1)</u>	<u>6,157.9</u>

Terms and debt repayment schedule	<u>Currency</u>	<u>Nominal interest rate</u>	<u>Year of maturity</u>
Senior Secured Term Loans	\$/€	LIBOR/ EURIBOR plus 2.00%	2024
Senior Secured Notes	€	2.125%-2.875%	2025-2026
Schuldschein Facility	€	EURIBOR plus 2.00%	2024
Senior Notes.....	\$/€	5.375%-5.625%	2024
Receivables Securitisation Facility.....	\$/€/£	Variable	2022
Koln CoGen Facility	€	2.85%	2024
Noretyl Facility	€	EURIBOR plus 2.10%	2024
Other	€	2.20%	2021

Senior Secured Term Loans

The Group has outstanding borrowings under a senior credit facilities agreement (the ‘Senior Secured Term Loans’ or ‘Term Loans’) dated April 27, 2012 (as amended and restated). The term Loans are denominated in both Euros and US dollars and mature on March 31, 2024.

In February 2017, the Group completed a refinancing of the Senior Secured Term Loans. The Term Loans due 2018 were repaid in full, the Term Loans due 2020 were extended to March 2022 and a new tranche of €1.4 billion Term Loans due 2024 were issued. The entire facility was repriced and the Applicable Margin on the Euro denominated Term Loans was reduced to 2.50% and on the US dollar denominated Term Loans was reduced to 2.75%. The LIBOR floor was also reduced to 0.75% on the Euro denominated Term Loans and was removed for the US dollar denominated Term Loans.

As a result of the substantial modification of the Senior Secured Term Loans in February 2017, the unamortised issue costs at this date of €23.6 million were written off (see Note 4).

In November 2017 the Group issued €550 million of Senior Secured Notes due 2025. The proceeds from the new Notes, along with the proceeds from the full repayment of the Styrolution Term Loan (see Note 29), were used to partially repay the Senior Secured Term Loans. The remaining Term Loans were refinanced with a lower interest margin and a new maturity date of March 31, 2024.

The Senior Secured Term Loans outstanding at December 31, 2019 before issue costs were €3,470.9 million (2018: €3,476.7 million, 2017: €3,450.5 million) of which €35.4 million (2018: €35.1 million, 2017: €34.5 million) is due within one year. The total amounts outstanding on the Euro denominated Term Loans were €2,018.8 million and the US dollar denominated Term Loans were €1,452.1 million.

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

The Term Loans are to be repaid in equal quarterly instalments, in aggregate annual amounts equal to 1% of the original principal amount of the Term Loans. The Term Loans mature on March 31, 2024.

The outstanding Term Loans denominated in US dollars bear interest at a rate per annum equal to LIBOR plus the Applicable Margin. The Term Loans denominated in Euros bear interest at a rate per annum equal to EURIBOR (subject to a floor of 0.50% per annum) plus the Applicable Margin.

As at December 31, 2019 the Applicable Margin for the Euro denominated Term Loans and the US dollar denominated Term Loans was 2.00%.

The Senior Secured Term Loans rank pari passu with the Senior Secured Notes due 2026, Senior Secured Notes due 2025 and are structurally senior to the Senior Notes due 2024. The notes are guaranteed by INEOS Group Holdings S.A., INEOS Holdings Limited and certain of their subsidiaries on a senior secured basis. The Term Loans and the guarantees are secured by first ranking liens on the same assets (subject to certain exceptions) that secure INEOS Holdings Limited's obligations under the senior secured notes.

The Term Loans have numerous customary operating and financial incurrence covenants all of which have been complied with during the year, including covenants relating to, among other things, limitations on indebtedness, ability to give guarantees, creation of security interests, making acquisitions and investments, disposing of assets and paying dividends. The Term Loans have no financial maintenance covenants.

The Senior Secured Term Loans are stated net of debt issue costs of €9.0 million (2018: €11.1 million, 2017: €12.9 million). These costs are allocated to the profit and loss account over the term of the Term Loans.

Senior Secured Notes due 2023

In April 2019 the Group redeemed in full the Senior Secured Notes due 2023 with the proceeds from the issuance of the Senior Secured Notes due 2026 along with cash on hand. Before redemption the Senior Secured Notes due 2023 were listed on the Euro MTF - Luxembourg Stock Exchange. The Senior Secured Notes due 2023 bore interest at 4.0% per annum, payable semi-annually in arrears on May 1 and November 1 of each year.

Following the full redemption of the Senior Secured Notes due 2023, unamortised debt issue costs of €4.0 million and an early prepayment premium of €7.7 million were charged to exceptional finance costs in April 2019 (see Note 4).

Senior Secured Notes due 2025

In November 2017 the Group issued €550 million of Senior Secured Notes due 2025. The proceeds from the new Notes were used to partially repay the Senior Secured Term Loans. The Senior Secured Notes due 2025 are listed on the Euro MTF - Luxembourg Stock Exchange. The Senior Secured Notes due 2025 bear interest at 2.125% per annum, payable semi-annually in arrears on May 15 and November 15 of each year. Unless previously redeemed as noted below, the Senior Secured Notes due 2025 will be redeemed by the Group at their principal amount on November 15, 2025.

The Senior Secured Notes due 2025 can be subject to redemption at any time on or after November 15, 2020, at the option of the Issuer, in whole or in part, on not less than 10 nor more than 60 days' prior notice at the following redemption prices (expressed as percentages of the aggregate principal amount), if redeemed during the 12-month period beginning November 15 of the year indicated below:

Year	Redemption Price
2020	101.0625%
2021	100.53125%
2022 and thereafter	100.000%

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

In each case, the redemption premium will be in addition to accrued and unpaid interest, if any, to the redemption date (subject to the rights of holders of record on relevant record dates to receive interest due on an interest payment date).

The Senior Secured Notes due 2025 rank pari passu with the Senior Secured Term Loans and Senior Secured Notes due 2026 and are structurally senior to the Senior Notes due 2024. The notes are guaranteed by INEOS Group Holdings S.A., INEOS Luxembourg I S.A., INEOS Holdings Limited and certain of their subsidiaries on a senior secured basis. The notes and the guarantees are secured by first ranking liens on the same assets (subject to certain exceptions) that secure INEOS Holdings Limited's obligations under the Senior Secured Term Loans.

The Indenture contains a number of operating and financial covenants including limitations on indebtedness, restricted payments, transactions with affiliates, liens, sale of assets and dividend payments.

The Senior Secured Notes due 2025 are stated net of debt issue costs of €4.4 million (2018: €5.1 million). These costs are allocated to the profit and loss account over the term of the Senior Secured Notes due 2025.

Senior Secured Notes due 2026

In April 2019, the Group issued €770 million of Senior Secured Notes due 2026. The Senior Secured Notes due 2026 are listed on the Euro MTF - Luxembourg Stock Exchange. The Senior Secured Notes due 2026 bear interest at 2.875% per annum, payable semi-annually in arrears on May 1 and November 1 of each year, beginning November 1, 2019. Unless previously redeemed as noted below, the Senior Secured Notes due 2026 will be redeemed by the Group at their principal amount on May 1, 2026.

The Senior Secured Notes due 2026 can be subject to redemption at any time on or after May 1, 2022, at the option of the Issuer, in whole or in part, on not less than 10 nor more than 60 days' prior notice at the following redemption prices (expressed as percentages of the aggregate principal amount), if redeemed during the 12-month period beginning May 1 of the year indicated below:

Year	Redemption Price
2022	101.4375%
2023	100.71875%
2024 and thereafter	<u>100.000%</u>

In each case, the redemption premium will be in addition to accrued and unpaid interest, if any, to the redemption date (subject to the rights of holders of record on relevant record dates to receive interest due on an interest payment date).

The Senior Secured Notes due 2026 rank pari passu with the Senior Secured Term Loans, Senior Secured Notes due 2025 and the Schuldschein Loan and are structurally senior to the Senior Notes due 2024. The notes are guaranteed by INEOS Group Holdings S.A., INEOS Luxembourg I S.A., INEOS Holdings Limited and certain of their subsidiaries on a senior secured basis. The notes and the guarantees are secured by first ranking liens on the same assets (subject to certain exceptions) that secure INEOS Holdings Limited's obligations under the Senior Secured Term Loans.

The Indenture contains a number of operating and financial covenants including limitations on indebtedness, restricted payments, transactions with affiliates, liens, sale of assets and dividend payments.

The Senior Secured Notes due 2026 are stated net of debt issue costs of €7.9 million. These costs are allocated to the profit and loss account over the term of the Senior Secured Notes due 2026.

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

Senior Notes due 2019

On March 1, 2017 the Group redeemed in full the Senior Notes due 2019 with the proceeds from the issuance of the Senior Secured Term Loans due 2024. Before redemption the Senior Notes due 2019 were listed on the Euro MTF - Luxembourg Stock Exchange and comprised of €600 million Senior Notes due 2019 (the “Euro Notes”) and \$590 million Senior Notes due 2019 (the “Dollar Notes”). The Senior Notes due 2019 bore interest at 5.75% per annum for the Euro Notes and 5.875% for the Dollar Notes, payable semi-annually in arrears on 15 February and 15 August of each year.

Following the full redemption of the Senior Notes due 2019 unamortised debt issue costs of €3.8 million were charged to exceptional finance costs in the year ended December 31, 2017 (see Note 5).

Senior Notes due 2024

The Senior Notes due 2024 are listed on the Euro MTF - Luxembourg Stock Exchange and comprise €650 million Senior Notes due 2024 (the “Euro Notes”) and \$500 million Senior Notes due 2024 (the “Dollar Notes”). The Senior Notes due 2024 bear interest at 5.375% per annum for the Euro Notes and 5.625% for the Dollar Notes, payable semi-annually in arrears on 1 February and 1 August of each year.

Unless previously redeemed as noted below, the Senior Notes due 2024 will be redeemed by the Group at their principal amount on 1 August 2024.

The Senior Notes due 2024 are subject to redemption at the option of the Group, in whole or in part, at the following redemption prices (expressed as percentages of the principal amount), if redeemed during the 12-month period beginning 1 August of the years indicated below:

Year	<u>Euro Notes redemption price</u>	<u>Dollar Notes redemption price</u>
2020	101.344%	101.406%
2021 and thereafter.....	<u>100.000%</u>	<u>100.000%</u>

In each case, the redemption premium will be in addition to accrued and unpaid interest, if any, to the redemption date (subject to the rights of holders of record on relevant record dates to receive interest due on an interest payment date).

The Senior Notes due 2024 are secured by junior pledges of all of the shares of INEOS Holdings Limited. The Senior Notes due 2024 are guaranteed by INEOS Luxembourg I S.A., INEOS Holdings Limited and their material operating subsidiaries on an unsecured senior subordinated basis. Such guarantees only become due 179 days after an event of default on the Senior Notes due 2024 has occurred or earlier under certain circumstances.

The Indenture contains a number of operating and financial covenants including limitations on indebtedness, restricted payments, transactions with affiliates, liens, sale of assets and dividend payments.

The Senior Notes due 2024 are stated net of debt issue costs of €5.9 million (2018: €7.1 million, 2017: €8.4 million). These costs are allocated to the profit and loss account over the term of the Senior Notes due 2024.

Receivables Securitisation Facility

The Group has entered into a €800 million receivables securitisation facilities agreement (“Receivables Securitisation Facility”) which matures on December 31, 2022. The total amount outstanding at December 31, 2019 was €297.1 million (2018: €287.8 million, 2017: €284.2 million). The facility is secured

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

by pledges over the trade receivables sold in to the programme. Interest is charged on the facility at a rate per annum of either EURIBOR or short term commercial paper rates plus a margin.

The Receivables Securitisation Facility is stated net of debt issue costs of €1.2 million (2018: €1.2 million, 2017: €1.7 million).

Koln CoGen Facility

As part of a project at the Group's Koln site to replace part of its incineration or cogeneration unit, the Group has entered into a €120 million loan facility ("Koln CoGen Facility"). The facility matures in December 2024. There are no scheduled interest or amortization payments during the first two years of the facility. The total amount outstanding at December 31, 2019 was €120.0 million (2018: €120.0 million.)

The Koln CoGen Facility is to be repaid in equal quarterly instalments of €6 million, starting from March 2020. The facility is secured by pledges over the plant and equipment of INEOS Manufacturing Deutschland GmbH's new cogeneration assets. The outstanding Koln CoGen Facility bears a fixed interest rate of 2.85% per annum.

Noretyl Facility

As part of the Group's purchase of the remaining 50% interest in the Noretyl ethylene cracker at Rafnes, Norway from the Kerling group on July 1, 2015, the Group also assumed the obligations of a €140 million loan facility ("Noretyl Facility") that Noretyl had in place. In November 2019 following the repayment of the initial loan the term loan facility was amended and restated with a new facility amount of €250.0 million. The total amount outstanding at December 31, 2019 before issue costs was €250.0 million (2018: €27.5 million, 2017: €55.0 million).

The Noretyl Facility is to be repaid in equal semi-annual instalments of €35.7 million starting on December 15, 2021. The facility matures in November 2024. The facility is secured by pledges over the property, plant and equipment of Noretyl AS. The outstanding Noretyl Facility will bear interest a rate per annum equal to EURIBOR (subject to a floor of 0% per annum) plus a margin of 2.10%.

The Noretyl Facility is stated net of debt issue costs of €3.5 million (2018: €0.6 million, 2017: €1.1 million).

Schuldschein Loan

In March 2019 the Group entered into a €141 million floating rate loan facility ("Schuldschein Loan"). The facility matures in March 2024.

The Schuldschein Loan bears interest at a rate per annum equal to EURIBOR for an interest period of six months (subject to a floor of 0.50% per annum) plus a margin of 2.00%. Interest on the Schuldschein Loan is payable semi-annually in arrears in September and March of each year.

The Schuldschein Loan ranks parri passu with the Senior Secured Term Loans and the Senior Secured Notes due 2025 and 2026.

The Schuldschein Loan is stated net of debt issue costs of €2.1 million.

Inventory Financing Facility

In June 2019 the Group entered into an inventory monetisation agreement with J Aron & Company LLC ('J Aron'), for an initial term of one year but extendable by mutual agreement. Under this arrangement, the Group sold certain inventory to J Aron and agreed to buy-back equivalent inventory at the end of the term at the same price. During the term, and subject to certain covenants and rights of J Aron, J Aron provides the Group with a just-in-time service for use of the inventory, and the ability to substitute used inventory with

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19. INTEREST-BEARING LOANS AND BORROWINGS (continued)

equivalent inventory, in return for a transaction fee. The arrangement is supported by a Group parent company guarantee and a cash collateral mechanism.

The total amount outstanding at December 31, 2019 before issue costs was €190.9 million.

The Inventory Financing Facility is stated net of debt issue costs of €0.5 million.

20. TRADE AND OTHER PAYABLES

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Current			
Trade payables	353.7	538.6	616.6
Amounts due to related parties	208.8	157.9	201.3
Other payables	609.9	598.7	564.1
Deferred consideration	30.9	31.5	22.6
Accruals and deferred income	568.7	514.9	473.3
	<u>1,772.0</u>	<u>1,841.6</u>	<u>1,877.9</u>
Non-current			
Other payables	65.7	77.4	70.1
Deferred consideration	-	14.7	27.4
Accruals and deferred income	14.0	20.0	22.6
	<u>79.7</u>	<u>112.1</u>	<u>120.1</u>

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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21. EMPLOYEE BENEFITS

Pension plans

The Group operates a number of pension plans throughout the world, devised in accordance with local conditions and practices. The plans are generally of the defined benefit type and are funded by payments to separately administered funds or insurance companies. The principal funded plans are in the United Kingdom, North America, Belgium, Norway and Switzerland.

The Group also operates a number of unfunded defined benefit pension schemes in Germany and France.

The most recent full valuations of the significant defined benefit plans were carried out as follows:

Plan	Country	Valuation date
All Plans.....	United Kingdom	31 December 2016 and 5 April 2019
All Plans.....	North America	1 January 2019
All Plans.....	Belgium	1 January 2020
All Plans.....	Norway	31 December 2019
All Plans.....	France	31 December 2019
All Plans.....	Germany	31 December 2019
All Plans.....	Switzerland	31 December 2019

These valuations have been updated where appropriate to December 31, 2019 by independent qualified actuaries.

The Group's pension schemes have been disclosed on a geographical basis as those schemes in the United Kingdom, North America and Other European. Other European principally includes the Group's pension plans in Germany, Belgium, Norway, France and Switzerland.

The UK defined benefit pension plans were historically final salary in nature, with a normal retirement age of 60. The majority of the UK plans are either closed to new entrants, or frozen to future accrual. The plans operate under trust law and are managed and administered by Trustees in accordance with the terms of each plan's Trust Deed and Rules and relevant legislation. The contributions paid to the UK plans are set every three years based on a funding agreement between the company and Trustee after taking actuarial advice.

The North American pension arrangements consist of two funded plans, both closed to new entrants and future accrual. Both plans were final salary defined benefit in nature, and the plans' liabilities are valued regularly in line with US statutory funding requirements. Around 90% of both plans' assets are invested in bond instruments, to closely match the profile of each plans' liabilities.

The Other European pension arrangements are primarily final salary in nature, the majority of which remain open to new entrants. The Norwegian and Swiss benefits are insured, the Belgian plan assets are held in trust, and the remaining schemes are unfunded with associated provisions held on the Group's balance sheet.

Pension plan assumptions

The principal actuarial assumptions (expressed as weighted averages or ranges) at the year end were as follows:

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21. EMPLOYEE BENEFITS (continued)

	United Kingdom			North America			Other European		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
	%								
Major assumptions									
Rate of general increase in salaries.....	3.2	3.2	3.2	3.5	3.5	3.5	2.0-4.5	2.0-4.3	2.0-4.3
Rate of increase to pensions in payment.....	3.0-5.0	3.0-5.0	3.0-5.0	0.0	0.0	0.0	0.0-1.8	0.0-1.8	0.0-1.8
Discount rate for scheme liabilities.....	2.1	2.9	2.7	3.25	3.5	3.5	0.8-2.5	0.8-2.8	0.8-2.8
Inflation.....	2.9	3.2	3.2	2.5	2.5	2.5	1.0-2.0	1.0-1.8	1.0-1.8

The assumptions relating to longevity underlying the pension liabilities at the reporting date are based on standard actuarial mortality tables and include an allowance for future improvements in longevity. The assumptions are equivalent to expecting a 65-year old to live for a number of years as follows:

	United Kingdom			North America			Other European		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
	Years								
Longevity at age 65 for current pensioners	22.2-24.8	22.4-25.9	22.6-26.0	21.5-22.9	21.6-24.7	21.7-24.7	22.3-25.5	20.0-30.0	19.3-30.0

The following table presents the sensitivity of the defined benefit obligation to each significant actuarial assumption:

	United Kingdom	North America	Other European
	2019		
	%		
Major assumptions			
Discount rate: 1.0% decrease	23.0	13.8	20.1
Rate of inflation: 0.5% increase ¹	7.9	N/A	4.9
One year increase in longevity for a member currently aged 65	3.6	0.7	3.5

1. The sensitivity to the inflation assumption change includes corresponding changes to the future salary increase and future pension increase assumptions where these assumptions are set to be linked to the inflation assumption.

Post-retirement health care plans

The Group also operates a number of post retirement healthcare plans in the United States, which provide employees with other post-employment benefits in respect of health care. The plans are unfunded and the liability in respect of these benefits is included in provisions. The liability is assessed by qualified independent actuaries under the projected unit method, assuming the following rates:

	2019	2018	2017
	%		
Rates			
Liability discount rate.....	3.3	4.3	3.5
Long-term healthcare trend rate	5.0	5.0	5.0

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21. EMPLOYEE BENEFITS (continued)

History of plans

The history of the plans for the current and prior years is as follows:

Consolidated balance sheet

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Present value of the defined benefit obligation in respect of pension plan.....	1,838.2	1,533.7	1,491.0
Present value of obligations in respect of post retirement health care plan.....	26.5	23.9	23.1
Fair value of plan assets	(929.0)	(813.1)	(813.1)
Net deficit	935.7	744.5	701.0

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Non-current assets	(48.5)	(45.3)	-
Non-current liabilities	984.2	789.8	701.0
Net deficit	935.7	744.5	701.0

The Group's net liability in respect of defined benefit obligations (DBO) is as follows:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
Obligations in respect of pension plans:			
United Kingdom.....	(48.1)	(35.8)	(25.2)
North America.....	(22.6)	(9.5)	(3.4)
Other European	979.9	765.9	706.5
	909.2	720.6	677.9
Obligations in respect of post-retirement health care plans.....	26.5	23.9	23.1
Recognised liability for defined benefit obligations	935.7	744.5	701.0

The Group expects to contribute approximately €39.2 million to its funded defined benefit plans in the next financial year. This excludes direct company benefit payments and payments in relation to unfunded defined benefit plan schemes.

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21. EMPLOYEE BENEFITS (Continued)

Expense recognised in the consolidated income statement

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Post retirement health care plans</u>	<u>Total</u>
	€m				
Year ended 31 December 2019					
Current service cost	0.7	1.0	41.3	0.4	43.4
Past service cost.....	-	-	(1.7)	-	(1.7)
Cost of termination benefits.....	-	-	2.9	-	2.9
Interest cost on DBO.....	8.9	9.6	18.9	1.0	38.4
Interest income on assets	(10.1)	(10.1)	(4.2)	-	(24.4)
	(0.5)	0.5	57.2	1.4	58.6

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Post retirement health care plans</u>	<u>Total</u>
	€m				
Year ended 31 December 2018					
Current service cost	0.9	0.6	40.5	0.5	42.5
Past service cost.....	-	(0.3)	-	-	(0.3)
Cost of termination benefits.....	-	-	0.6	-	0.6
Interest cost on DBO.....	8.9	8.6	17.1	0.8	35.4
Interest income on assets	(9.7)	(8.8)	(3.5)	-	(22.0)
	0.1	0.1	54.7	1.3	56.2

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Post retirement health care plans</u>	<u>Total</u>
	€m				
Year ended 31 December 2017					
Current service cost	1.0	0.9	42.9	0.6	45.4
Cost of termination benefits.....	-	-	2.4	-	2.4
Interest cost on DBO.....	10.2	10.2	16.2	0.9	37.5
Interest income on assets	(8.8)	(10.1)	(2.9)	-	(21.8)
	2.4	1.0	58.6	1.5	63.5

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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21. EMPLOYEE BENEFITS (Continued)

The expense is recognised in the following line items in the consolidated income statement:

	2019	2018	2017
	€m		
Cost of sales and administrative expenses.....	44.6	42.8	47.8
Finance cost.....	14.0	13.4	15.7
	58.6	56.2	63.5

Pension plans

	United Kingdom	North America	Other European	Total
	€m			
As at 31 December 2019				
Present value of funded obligations	337.7	252.6	360.5	950.8
Present value of unfunded obligations	-	-	887.4	887.4
	337.7	252.6	1,247.9	1,838.2
Fair value of plan assets	(385.8)	(275.2)	(268.0)	(929.0)
	(48.1)	(22.6)	979.9	909.2

	United Kingdom	North America	Other European	Total
	€m			
As at 31 December 2018				
Present value of funded obligations	302.5	230.1	289.8	822.4
Present value of unfunded obligations	-	-	711.3	711.3
	302.5	230.1	1,001.1	1,533.7
Fair value of plan assets	(338.3)	(239.6)	(235.2)	(813.1)
	(35.8)	(9.5)	765.9	720.6

	United Kingdom	North America	Other European	Total
As at 31 December 2017				
Present value of funded obligations	329.8	252.0	243.0	824.8
Present value of unfunded obligations	-	-	666.2	666.2
	329.8	252.0	909.2	1,491.0
Fair value of plan assets	(355.0)	(255.4)	(202.7)	(813.1)
	(25.2)	(3.4)	706.5	677.9

Included within the Other European deficits are amounts relating to unfunded German plans of €877.7 (2018: €702.1 million, 2017: €655.9 million).

The pension plan surplus is recognised on the balance sheet on the basis that the Group is entitled to a refund of any remaining assets once all members have left the plan.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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21. EMPLOYEE BENEFITS (Continued)

Movements in present value of defined benefit obligation:

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Total</u>
	€m			
At 1 January 2017	402.9	281.5	880.3	1,564.7
Current service cost.....	1.0	0.9	42.9	44.8
Interest cost on DBO.....	10.2	10.2	16.2	36.6
Member contributions	-	-	1.4	1.4
Actuarial (gain) - experience.....	(28.0)	(1.4)	(0.1)	(29.5)
Actuarial (gain) – demographic assumptions.....	(13.8)	(1.1)	(0.1)	(15.0)
Actuarial loss – financial assumptions	(9.5)	16.9	(11.2)	(3.8)
Disbursements from plan assets	(20.1)	(19.5)	(5.6)	(45.2)
Disbursements paid directly by the employer	(0.2)	(0.3)	(11.8)	(12.3)
Termination benefits	-	-	2.4	2.4
Reclassifications	-	(0.6)	-	(0.6)
Exchange.....	(12.7)	(34.6)	(5.2)	(52.5)
At 31 December 2017	329.8	252.0	909.2	1,491.0
Current service cost.....	0.9	0.6	40.5	42.0
Past service cost.....	-	(0.3)	-	(0.3)
Interest cost on DBO.....	8.9	8.6	17.1	34.6
Member contributions	-	-	1.5	1.5
Actuarial loss – experience	0.6	0.8	17.5	18.9
Actuarial (gain)/loss – demographic assumptions.....	(2.3)	(1.6)	8.9	5.0
Actuarial (gain) – financial assumptions.....	(13.1)	(20.9)	(2.8)	(36.8)
Disbursements from plan assets	(17.7)	(18.7)	(4.5)	(40.9)
Disbursements paid directly by the employer	(0.1)	(0.3)	(12.3)	(12.7)
Termination benefits	-	-	0.6	0.6
New material plans	-	-	24.1	24.1
Exchange.....	(4.5)	9.9	1.3	6.7
At 31 December 2018	302.5	230.1	1,001.1	1,533.7
Current service cost.....	0.7	1.0	41.3	43.0
Past service cost.....	-	-	(1.7)	(1.7)
Interest cost on DBO.....	8.9	9.6	18.9	37.4
Member contributions	-	-	1.7	1.7
Actuarial (gain)/loss – experience.....	(5.5)	1.2	9.1	4.8
Actuarial (gain) – demographic assumptions.....	(3.2)	(0.6)	(3.7)	(7.5)
Actuarial loss – financial assumptions	39.5	28.0	196.2	263.7
Disbursements from plan assets	(22.3)	(22.5)	(7.6)	(52.4)
Disbursements paid directly by the employer	-	(0.2)	(13.0)	(13.2)
Termination benefits	-	-	2.9	2.9
Reclassifications	-	1.3	-	1.3
Exchange.....	17.1	4.7	2.7	24.5
At 31 December 2019	337.7	252.6	1,247.9	1,838.2

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21. EMPLOYEE BENEFITS (Continued)

Movements in fair value of plan assets:

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Total</u>
	€m			
At 1 January 2017.....	341.6	278.1	179.7	799.4
Interest income on plan assets.....	8.8	10.1	2.9	21.8
Return on plan assets greater than discount rate	24.5	16.3	14.5	55.3
Employer contributions.....	12.6	5.6	25.5	43.7
Member contributions.....	-	-	1.4	1.4
Disbursements.....	(20.3)	(19.8)	(17.4)	(57.5)
Reclassifications	-	(0.5)	-	(0.5)
Exchange	(12.2)	(34.4)	(3.9)	(50.5)
At 31 December 2017	355.0	255.4	202.7	813.1
Interest income on plan assets.....	9.7	8.8	3.5	22.0
Return on plan assets less than discount rate	(16.6)	(21.1)	0.2	(37.5)
Employer contributions.....	13.0	5.3	26.7	45.0
Member contributions.....	-	-	1.5	1.5
Disbursements.....	(17.8)	(19.0)	(16.8)	(53.6)
New material plans	-	-	15.1	15.1
Reclassifications	-	-	1.4	1.4
Exchange	(5.0)	10.2	0.9	6.1
At 31 December 2018	338.3	239.6	235.2	813.1
Interest income on plan assets.....	10.1	10.1	4.2	24.4
Return on plan assets greater than discount rate	27.2	36.6	16.2	80.0
Employer contributions.....	13.1	5.4	29.5	48.0
Member contributions.....	-	-	1.7	1.7
Disbursements.....	(22.3)	(22.7)	(20.6)	(65.6)
Reclassifications	-	1.3	-	1.3
Exchange	19.4	4.9	1.8	26.1
At 31 December 2019	385.8	275.2	268.0	929.0

The overall expected rate of return is calculated by weighting the individual rates in accordance with the anticipated balance in the plan's investment portfolio.

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21. EMPLOYEE BENEFITS (Continued)

The fair value of the plan assets were as follows:

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Total</u>
	€m			
At 31 December 2019				
Equities	30.9	27.3	114.8	173.0
Corporate bonds.....	284.3	244.9	52.3	581.5
Property	12.2	-	19.7	31.9
Other	58.4	3.0	81.2	142.6
Total plan assets	385.8	275.2	268.0	929.0

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Total</u>
	€m			
At 31 December 2018				
Equities	21.9	23.8	100.5	146.2
Corporate bonds.....	244.9	211.9	41.6	498.4
Property	9.2	-	16.3	25.5
Other	62.3	3.9	76.8	143.0
Total plan assets	338.3	239.6	235.2	813.1

	<u>United Kingdom</u>	<u>North America</u>	<u>Other European</u>	<u>Total</u>
	€m			
At 31 December 2017				
Equities	43.3	25.2	93.5	162.0
Corporate bonds.....	259.3	227.1	33.0	519.4
Property	9.3	-	10.2	19.5
Other	43.1	3.1	66.0	112.2
Total plan assets	355.0	255.4	202.7	813.1

There are no plans which hold investments in the Group's own financial instruments, or hold assets or property which are used by the Group.

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21. EMPLOYEE BENEFITS (Continued)

Post-retirement health care plans

Reconciliation of present value of scheme liabilities:

	<u>2019</u>	<u>2018</u>	<u>2017</u>
	€m		
At 1 January	23.9	23.1	24.2
Current service cost.....	0.4	0.5	0.6
Interest cost on DBO.....	1.0	0.8	0.9
Actuarial loss – experience.....	0.9	2.4	0.5
Actuarial gain – demographic assumptions.....	(0.3)	(0.1)	(0.1)
Actuarial loss/(gain) – financial assumptions.....	2.5	(1.8)	1.3
Disbursements directly paid by the employer	(2.6)	(2.1)	(1.1)
Exchange adjustments	0.7	1.1	(3.2)
At 31 December	<u>26.5</u>	<u>23.9</u>	<u>23.1</u>

The post-retirement healthcare plans do not hold any assets.

The following table presents the sensitivity of the defined benefit obligation to each significant actuarial assumption:

	<u>2019</u>
	%
Major assumptions	
Discount rate: 1.0% decrease	11.2%
1 year increase in longevity for a member currently aged 65	<u>1.8%</u>

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22. PROVISIONS

	Severance and restructuring costs	Remediation	Other	Total
	€m			
At 1 January 2019	28.2	7.3	3.0	38.5
Charged/(credited) to the income statement	13.6	18.8	1.0	33.4
Utilised in the year	(0.2)	(0.3)	-	(0.5)
Unwinding of discount	-	-	-	-
Reclassifications	(3.0)	6.4	-	3.4
Effects of movements in foreign exchange	(0.6)	(0.1)	-	(0.7)
At 31 December 2019	38.0	34.9	4.0	74.1
Non – current	20.1	8.3	0.4	28.8
Current	12.4	0.1	-	12.5
Balance at 31 December 2017	32.5	8.4	0.4	41.3
Non – current	20.1	7.1	0.4	27.6
Current	8.1	0.2	2.6	10.9
Balance at 31 December 2018	28.2	7.3	3.0	38.5
Non – current	20.1	25.9	0.5	46.5
Current	17.9	6.2	3.5	27.6
Balance at 31 December 2019	38.0	32.1	4.0	74.1

Severance and restructuring costs

The severance and restructuring costs includes €15.6 million relating to the Köln site following a reorganisation within the O&P North business in 2015 and €2.1 million following a Group restructuring of the Technologies business in 2016. Both these provisions are expected to be fully utilised within the next 5 years.

In December 2019 the Group took the decision to close the Nitriles facility at Seal Sands, United Kingdom. As a result a severance and restructuring provision was made for €16.3 million in respect of closure costs including severance and outplacement expenses (see Note 4). The provision is expected to be fully utilised within the next two years.

Remediation costs

The Group has provided for the cost of remediation works of €13.2 million where there is a legal or constructive obligation for such work to be carried out. Provisions are established to meet the clean-up costs of contaminated soil and groundwater, the removal of potentially hazardous substances and rectification work required to ensure compliance with license to operate obligations. These costs relate mainly to the Group's production facilities at the Köln, Chocolate Bayou, Green Lake and Lima sites and a pilot plant at the Lavera site. The provision only covers items of specific work for which a reasonable estimate can be determined. By their nature the amounts and timing of any outflows in respect of remediation costs are difficult to predict.

In December 2019 the Group took the decision to close the Nitriles facility at Seal Sands, United Kingdom. As a result a remediation provision was made for €18.8 million in respect of decommissioning and demolition costs (see Note 4). The provision is expected to be fully utilised within the next two years.

Other provisions

Other provisions primarily relates to a commercial disputes in respect of a licencing agreements and are expected to be fully utilised within the next year.

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23. SHARE CAPITAL

	2019	2018	2017
	€m		
Fully paid			
924,803 (2018: 924,803, 2017: 924,803) Ordinary shares of €1 each.....	0.9	0.9	0.9

The holders of ordinary shares are entitled to receive dividends as declared from time to time and are entitled to one vote per share at meetings of the Company.

24. DIVIDENDS

The following dividends were recognised during the year:

	2019	2018	2017
	€m		
Dividend paid (2019: €2,234.6 per share, 2018: €209.56 per share, 2017: €282.11 per share).....	2,066.6	193.8	260.9

The 2019 amounts are interim dividends declared by the Board of Directors and will be approved at the Company's Annual General Meeting on 30 June 2020.

25. FINANCIAL INSTRUMENTS

25a Fair value of financial instruments

Investments in debt and equity securities

The fair value of financial assets at fair value through profit or loss (previously other investments) is estimated as the present value of future cash flows, discounted at the market rate of interest at the reporting date.

Financial assets at fair value through other comprehensive income are accounted for at fair value based on the present value of future cash flows where such information is readily available based on the present value of future cash flows estimated from financial information made available during the year as a result of a recent transaction in the investment. However, as explained in Note 14, the Group's financial assets at fair value through other comprehensive income include certain equity interests which are not quoted and for which there is no active market. The Group considers that the acquisition cost to be a reasonable approximation for fair value.

Trade and other receivables

The carrying amount of trade and other receivables generally approximates to fair value due to their short maturities. Where settlement is not due in the short term and where the effect is material, fair value is estimated as the present value of future cash flows discounted at the market rate of interest at the reporting date.

Trade and other payables

The carrying amount of trade and other payables generally approximates to fair value due to their short maturities. Where settlement is not due in the short term and where the effect is material, fair value is estimated as the present value of future cash flows discounted at the market rate of interest at the reporting date.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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25. FINANCIAL INSTRUMENTS (continued)

Cash and cash equivalents

The fair value of cash and cash equivalents is estimated as its carrying amount where the cash is repayable on demand. Where it is not repayable on demand then the fair value is estimated at the present value of future cash flows, discounted at the market rate of interest at the reporting date.

Interest-bearing borrowings

The fair value of the Senior Secured Term Loans, Senior Secured Notes and Senior Notes, which after initial recognition is determined for disclosure purposes only are based on the market yields derived from quotes obtained at the year end from leading financial institutions. The fair value of the Receivables and Inventory Securitisation, Noretyl, Schuldschein, and Koln CoGen facilities is the same as the carrying value.

Derivative financial instruments

The fair value of interest rate swaps and commodity contracts are based on market or broker quotes.

Fair values

The fair values for each class of financial assets and financial liabilities together with their carrying amounts shown in the consolidated balance sheet are as follows:

	Carrying amount	Fair value	Carrying amount	Fair value	Carrying amount	Fair value
	2019		2018		2017	
	€m					
Financial assets held at fair value through profit or loss:						
Investments	-	-	251.2	251.2	-	-
Derivative commodity contracts	15.3	15.3	10.1	10.1	-	-
Financial assets held at fair value through other comprehensive income:						
Equity investments.....	28.3	28.3	28.3	28.3	-	-
Financial assets held as available for sale at amortised cost:						
Equity investments.....	-	-	-	-	28.3	28.3
Financial assets held at amortised cost (previously loans and receivables):						
Trade receivables	1,008.6	1,008.6	1,177.5	1,177.5	1,236.3	1,236.3
Amounts due from related parties	1,028.6	1,028.6	1,011.7	1,011.7	1,211.2	1,211.2
Other receivables	152.8	152.8	144.8	144.8	125.2	125.2
Other investments	-	-	-	-	238.5	238.5
Cash and cash equivalents.....	982.9	982.9	2,071.3	2,071.3	1,366.3	1,366.3
Total financial assets.....	<u>3,216.5</u>	<u>3,216.5</u>	<u>4,694.9</u>	<u>4,694.9</u>	<u>4,205.8</u>	<u>4,205.8</u>

The Group's non-voting preferred partnership interest in Ineos Investments Partnership, an entity held under common control by the Group's ultimate shareholders was previously classified as other investments and held at amortised cost under IAS 39; however at January 1, 2018 this investment was designated as a financial asset at fair value through profit or loss under IFRS 9 and was subsequently disposed of during 2019 (see Note 13). The Group's equity investments which are held for long-term strategic purposes were previously classified as available-for-sale and held at amortised cost under IAS 39; however at January 1, 2018 the Group designated these investments as financial assets at fair value through other comprehensive income (see Note 14).

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25. FINANCIAL INSTRUMENTS (continued)

	Carrying amount	Fair value	Carrying amount	Fair value	Carrying amount	Fair value
	2019		2018		2017	
	€m					
Financial liabilities held for trading at fair value through profit and loss:						
Derivative commodity contracts	59.5	59.5	0.4	0.4	2.5	2.5
Financial liabilities carried at amortised cost:						
Senior Secured Term Loans	3,461.9	3,478.5	3,465.6	3,333.3	3,437.6	3,451.4
Senior Secured Notes	1,307.7	1,352.5	1,310.7	1,276.7	1,309.0	1,333.8
Senior Notes	1,090.4	1,138.1	1,080.2	1,024.6	1,060.4	1,128.8
Securitisation Facility	295.9	297.1	286.6	287.8	282.5	284.2
Inventory Financing Facility	190.4	190.9	-	-	-	-
Noretyl Facility	246.5	250.0	26.9	27.5	53.9	55.0
Koln CoGen Facility	120.0	120.0	120.0	120.0	-	-
Schuldschein Loan	138.9	141.0	-	-	-	-
Other bank loans	1.1	1.1	11.4	11.4	13.2	13.2
Lease liabilities	989.8	989.8	-	-	-	-
Finance lease liabilities	-	-	1.2	1.2	1.3	1.3
Trade payables	353.7	353.7	538.6	538.6	616.6	616.6
Amounts due to related parties	208.8	208.8	157.9	157.9	201.3	201.3
Other payables	675.6	675.6	676.1	676.1	634.2	634.2
Total financial liabilities	<u>9,140.2</u>	<u>9,256.6</u>	<u>7,675.6</u>	<u>7,455.5</u>	<u>7,612.5</u>	<u>7,722.3</u>

The table below analyses financial instruments carried at fair value, by valuation method. The different levels, determined in accordance with IFRS 13 “Fair Value Measurement”, have been defined as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices); and
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

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25. FINANCIAL INSTRUMENTS (continued)

	Level			Fair value	Level			Fair value	Level			
	1	2	3		1	2	3		1	2	3	
	2019			2018			2017					
	€m											
Financial assets held at fair value through profit or loss:												
Investments.....	-	-	-	-	251.2	-	-	251.2	-	-	-	-
Derivative commodity contracts.....	15.3	-	15.3	-	10.1	-	10.1	-	-	-	-	-
Financial assets held at fair value through other comprehensive income:												
Equity investments.....	28.3	-	-	28.3	28.3	-	-	28.3	-	-	-	-
Financial liabilities held for trading at fair value through profit and loss:												
Derivative commodity contracts.....	(59.5)	-	(59.5)	-	(0.4)	-	(0.4)	-	(2.5)	-	(2.5)	-
Total financial assets and liabilities held at fair value	(15.9)	-	(44.2)	28.3	289.2	-	9.7	279.5	(2.5)	-	(2.5)	-

The commodity derivatives are fair valued using rates in a quoted market. There have been no transfers from Level 2 to Level 1 in 2019 (2018 and 2017: no transfers from Level 2 to Level 1). In prior years the investment held at fair value through profit or loss and equity securities held at fair value through other comprehensive income were classified as amortised cost and available for sale assets, respectively.

25b Net gains and losses from financial instruments

Net gains and losses from financial instruments comprise the results of valuations, the amortisation of discounts, the recognition and derecognition of impairment losses, results from the translation of foreign currencies, interest, dividends and all effects on profit or loss of financial instruments.

Net gains from financial assets measured at amortised cost relate primarily to recognition and derecognition of impairment losses, results from the translation of foreign currencies and interest income.

Net losses from financial liabilities measured at amortised cost relate primarily to amortisation of discounts, results from the translation of foreign currencies, interest expense and other financing related expenses.

The item 'financial instruments at fair value through profit or loss' comprise valuation gains and losses, and only includes gains and losses from instruments which are not designated as hedging instruments as defined by IFRS 9.

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25. FINANCIAL INSTRUMENTS (continued)

	Assets measured at amortised cost		Loans and receivables	Fair value through OCI		Available for sale financial assets
	2019	2018	2017	2019	2018	2017
	€m					
Interest income.....	76.0	75.6	78.5	-	-	-
Dividend income.....	-	-	-	6.0	5.0	5.3
Foreign exchange (losses)/gains	61.1	(26.5)	80.5	-	-	-
Net result.....	137.1	49.1	159.0	6.0	5.0	5.3
Carrying value at 31 December	3,172.9	4,405.3	4,177.5	28.3	28.3	28.3

	Liabilities measured at amortised cost			Financial instruments at fair value through profit or loss		
	2019	2018	2017	2019	2018	2017
	€m					
Interest cost.....	(287.3)	(227.9)	(277.6)	-	-	-
Other finance cost	(7.4)	(6.5)	(7.7)	-	-	-
Net fair value (losses)/gains on derivatives.....	-	-	-	(95.4)	12.8	(9.0)
Foreign exchange gains.....	(27.7)	173.5	304.8	-	10.2	-
Net result.....	(322.4)	(60.9)	19.5	(95.4)	23.0	(9.0)
Carrying value at 31 December	(9,080.7)	(7,675.2)	(7,610.0)	(44.2)	260.9	(2.5)

25c Credit risk

Financial risk management

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, deposits with financial institutions and derivatives.

Group Treasury policy and objectives in relation to credit risk is to minimize the likelihood that the Group will experience financial loss due to counterparty failure and to ensure that in the event of a single loss, the failure of any single counterparty would not materially impact the financial wellbeing of the Group.

Trade and other receivables

The Group's exposure to credit risk is influenced mainly by the individual characteristics of each customer. However, management also considers the demographics of the Group's customer base, including the default risk of the industry and country in which customers operate, as these factors may have an influence on credit risk. Management considers that there is no geographical concentration of credit risk. The Group has established a credit policy under which each new customer is analysed individually for creditworthiness before the Group's standard payment and delivery terms and conditions are offered or are adjusted accordingly. The Group's review includes external ratings, when available, and in some cases bank references. Purchase limits are established for each customer, which represent the maximum open amount without requiring approval. Customers that fail to meet the Group's benchmark creditworthiness may transact with the Group only on a prepayment basis.

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25. FINANCIAL INSTRUMENTS (continued)

Investments, cash and cash equivalent

Surplus cash investments are only made with banks with which the Group has a relationship. Occasionally deposits are made with banking counterparties that provide financing arrangements, reducing the credit exposure of the Group.

Guarantees

The Group's policy is to provide financial guarantees only to wholly-owned subsidiaries. At December 31, 2019 no guarantees were outstanding (2018: none, 2017: none).

Exposure to credit risk

The carrying amount of financial assets represents the maximum credit exposure. Therefore, the maximum exposure to credit risk at the reporting date was the carrying amount of financial assets. Further details on the Group's exposure to credit risk are given in Note 18.

25d Liquidity risk

Financial risk management

Liquidity risk is the risk that the Group will not be able to meet its financial obligations as they fall due. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under normal and stressed conditions, without incurring unacceptable losses or risking damage to the Group. The Group's exposure to liquidity risk is limited by the fact that it operates with significant cash resources, and it maintains the most appropriate mix of short, medium and long-term borrowings from the Group's lenders.

The Group is reliant on committed funding from a variety of sources at Group and subsidiary company level to meet the anticipated needs of the Group for the period covered by the Group's budget.

The Group forecasts on a regular basis the expected cash flows that will occur on a weekly and monthly basis. This information is used in conjunction with the weekly reporting of actual cash balances at bank in order to calculate the level of funding that will be required in the short and medium term. On a monthly basis the level of headroom on existing facilities is reported and forecast forward until the end of the financial period.

In addition, the Group maintains various lines of credits in the form of Senior Notes, Senior Secured Notes, Senior Secured Term Loans, Securitisation, Noretyl Facility, Koln CoGen Facility and Other Loans. (See Note 19 – "Interest-Bearing Loans and Borrowings" for more information).

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25. FINANCIAL INSTRUMENTS (continued)

The following are the contractual maturities of financial liabilities, including estimated interest payments and excluding the effect of netting agreements:

	2019					
	Carrying amount	Contractual cash flows	1 year or less	1 to<2 years	2 to<5 years	5 years and over
€m						
Non-derivative financial liabilities						
Senior Secured Term Loans	3,461.9	(3,905.3)	(139.8)	(138.2)	(3,627.3)	-
Senior Secured Notes	1,307.7	(1,534.0)	(33.8)	(33.8)	(101.5)	(1,364.9)
Senior Notes	1,090.4	(1,396.4)	(60.0)	(60.0)	(1,276.4)	-
Securitisation Facility	295.9	(322.9)	(8.6)	(8.6)	(305.7)	-
Inventory Financing Facility	190.4	(192.7)	(192.7)	-	-	-
Noretyl Facility	246.5	(271.0)	-	(41.0)	(230.0)	-
Koln CoGen Facility	120.0	(129.0)	(27.2)	(26.5)	(75.3)	-
Schuldschein loan	138.9	(158.6)	(3.5)	(3.5)	(151.6)	-
Other loans	1.1	(1.1)	(0.5)	(0.6)	-	-
Lease liabilities	989.8	(1,131.1)	(187.0)	(187.0)	(272.0)	(485.1)
Trade payables	353.7	(353.7)	(353.7)	-	-	-
Amounts due to related parties	208.8	(208.8)	(208.8)	-	-	-
Other payables	675.6	(675.6)	(609.9)	(65.7)	-	-
Derivative financial liabilities						
Commodity contracts	59.5	(59.5)	(59.5)	-	-	-
	9,140.2	(10,339.7)	(1,885.0)	(564.9)	(6,039.8)	(1,850.0)

	2018					
	Carrying amount	Contractual cash flows	1 year or less	1 to<2 years	2 to<5 years	5 years and over
€m						
Non-derivative financial liabilities						
Senior Secured Term Loans	3,465.6	(4,078.7)	(152.3)	(151.4)	(445.5)	(3,329.5)
Senior Secured Notes	1,310.7	(1,525.6)	(42.5)	(27.0)	(882.7)	(573.4)
Senior Notes	1,080.2	(1,439.4)	(58.7)	(58.7)	(176.0)	(1,146.0)
Securitisation Facility	286.6	(306.4)	(9.3)	(297.1)	-	-
Noretyl Facility	26.9	(28.0)	(28.0)	-	-	-
Koln CoGen Facility	120.0	(132.4)	(3.4)	(27.2)	(77.4)	(24.4)
Other loans	11.4	(13.5)	(1.1)	(1.1)	(11.3)	-
Finance lease liabilities	1.2	(7.5)	(0.2)	(0.1)	(0.3)	(6.9)
Trade payables	538.6	(538.6)	(538.6)	-	-	-
Amounts due to related parties	157.9	(157.9)	(157.9)	-	-	-
Other payables	676.1	(676.1)	(598.7)	(77.4)	-	-
Derivative financial liabilities						
Commodity contracts	0.4	(0.4)	(0.4)	-	-	-
	7,675.6	(8,904.5)	(1,591.1)	(640.0)	(1,593.2)	(5,080.2)

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25. FINANCIAL INSTRUMENTS (continued)

	2017					
	Carrying amount	Contractual cash flows	1 year or less	1 to<2 years	2 to<5 years	5 years and over
	€m					
Non-derivative financial liabilities						
Senior Secured Term Loans	3,437.6	(4,040.6)	(131.9)	(130.4)	(385.3)	(3,393.0)
Senior Secured Notes	1,309.0	(1,568.6)	(42.9)	(42.5)	(112.1)	(1,371.1)
Senior Notes	1,060.4	(1,470.6)	(57.4)	(57.4)	(172.2)	(1,183.6)
Securitisation Facility	282.5	(307.3)	(7.7)	(7.7)	(291.9)	-
Noretyl Facility	53.9	(56.7)	(28.7)	(28.0)	-	-
Other loans	13.2	(15.7)	(2.9)	(1.0)	(3.1)	(8.7)
Finance lease liabilities	1.3	(7.6)	(0.2)	(0.1)	(0.3)	(7.0)
Trade payables	616.6	(616.6)	(616.6)	-	-	-
Amounts due to related parties	201.3	(201.3)	(201.3)	-	-	-
Other payables	634.2	(634.2)	(564.1)	(70.1)	-	-
Derivative financial liabilities						
Commodity contracts	2.5	(2.5)	(2.3)	(0.2)	-	-
	<u>7,612.5</u>	<u>(8,921.7)</u>	<u>(1,656.0)</u>	<u>(337.4)</u>	<u>(964.9)</u>	<u>(5,963.4)</u>

25e Net investment and cash flow hedges

The Group does not have derivative commodity contracts that qualify as cash flow hedges at December 31, 2019.

The Group has US\$ and Sterling financial liabilities in respect of the Senior Secured Term Loans, Senior Notes and Securitisation Facility that are designated net investment hedges of US\$ and Sterling operations in accordance with the requirements of IFRS 9. The US\$ and Sterling net investment hedges had a carrying value and fair value as follows:

	Carrying amounts 2019	Fair value 2019	Carrying amounts 2018	Fair value 2018	Carrying amounts 2017	Fair value 2017
	€m					
US Dollars	(2,019.6)	(2,039.7)	(1,981.2)	(1,851.2)	(1,909.9)	(1,940.3)
Sterling	(3.2)	(3.2)	(4.2)	(4.2)	(5.4)	(5.4)
	<u>(2,022.8)</u>	<u>(2,042.9)</u>	<u>(1,985.4)</u>	<u>(1,855.4)</u>	<u>(1,915.3)</u>	<u>(1,945.7)</u>

For the year ended December 31, 2019 gains net of tax of €88.0 million were taken directly to reserves and reported in the Statement of Comprehensive Income for the year then ended (2018: gains €271.3 million, 2017: losses €637.5 million). There was no ineffectiveness recognised in the income statement for the year ended December 31, 2019 (2018: €nil, 2017: €nil). The cumulative net investment hedge reserve amount as at December 31, 2019 was €490.9 million (2018: €402.9 million, 2017: €131.6 million).

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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25. FINANCIAL INSTRUMENTS (continued)

25f Market risk

Financial risk management

Market risk reflects the possibility that changes in market prices, such as crude oil, feedstock refined products, chemicals or currency exchange rates or changes in interest rates will adversely affect the value of the Group's assets, liabilities or expected future cash flows. The Group holds commodity contracts in order to manage market risk. The use of derivative instruments is confined to specialist teams that have the appropriate skills, experience, supervision, control and reporting systems.

Market risk - Foreign currency risk

The Group operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the U.S. Dollar and Sterling.

Foreign exchange risk arises from net investments in foreign operations, future commercial transactions, and recognised assets and liabilities.

The Group applies hedge accounting to foreign currency differences arising on the retranslation of a financial liability designated as a hedge of a net investment in a foreign operation. When the settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, foreign exchange gains and losses arising from such a monetary item is considered to form part of a net investment in a foreign operation and changes in the fair value are recognised directly within equity.

A substantial portion of the Group's revenue is generated in, or linked to, the U.S. dollar and the euro. In the European petrochemical business, product prices, certain feedstock costs and most other costs are denominated in euro and sterling. In the U.S. petrochemical and specialty chemicals businesses, product prices, raw materials costs and most other costs are primarily denominated in U.S. dollars.

The Group generally does not enter into foreign currency exchange instruments to hedge foreign currency transaction exposure, although the Group has done so in the past and may do so in the future.

The Group benefits from natural hedging, to the extent that currencies in which net cash flows are generated from the Group's operations, are matched against long-term indebtedness.

The foreign currency exposure where the Group's external financial assets/(liabilities) are not denominated in the functional currency of the operating unit involved is shown below. Foreign exchange differences on retranslation of these assets and liabilities are taken to the other comprehensive income of the Group.

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
Euros	-	22.4	125.0
US Dollars.....	(589.7)	(396.8)	(415.7)
Sterling.....	(12.9)	(10.5)	(10.9)
Other	(247.4)	(25.9)	(54.6)
	<u>(850.0)</u>	<u>(410.8)</u>	<u>(356.2)</u>

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25. FINANCIAL INSTRUMENTS (continued)

Sensitivity analysis

A ten percent weakening of the following currencies at December 31, would have increased/ (decreased) equity and profit or (loss) by the amounts shown below. This calculation assumes that the change occurred at the reporting date and had been applied to risk exposures existing at that date.

This analysis assumes that all other variables, in particular other exchange rates and interest rates, remain constant. The analysis is performed on the same basis for the comparative years.

	Equity			Profit or loss		
	2019	2018	2017	2019	2018	2017
	€m					
Euro.....	-	-	-	-	(2.2)	(12.5)
US Dollars.....	57.1	29.7	28.6	1.8	9.9	13.0
Sterling.....	0.3	0.4	0.5	1.0	0.6	0.5
Other	24.6	2.3	5.0	0.1	0.3	0.4

A ten percent strengthening of the above currencies against the euro at December 31, would have had the equal but opposite effect on the above currencies to the amounts shown above, on the basis that all other variables remain constant.

Market risk – Interest rate risk

Profile

At the reporting date the interest rate profile of the Group's interest-bearing financial instruments was:

Carrying amount – asset/(liability)	2019	2018	2017
	€m		
Fixed rate instruments			
Financial assets	859.6	1,078.0	340.3
Financial liabilities	(3,699.4)	(2,523.5)	(2,383.9)
	(2,839.8)	(1,445.5)	(2,043.6)
Variable rate instruments			
Financial assets	982.9	2,071.3	1,366.3
Financial liabilities	(4,143.2)	(3,779.1)	(3,774.0)
	(3,160.3)	(1,707.8)	(2,407.7)

Sensitivity analysis

A change of 1% in interest rates at the reporting date would have increased/(decreased) equity and profit or loss by the amounts shown below. This calculation assumes that the change occurred at the reporting date and had been applied to risk exposures existing at that date.

This analysis assumes that all other variables, in particular foreign currency rates, remain constant and considers the effect of financial instruments with variable interest rates, financial instrument at fair value through profit or loss or available for sale with fixed interest rates and the fixed rate element of interest rate caps. The analysis is performed on the same basis for 2019, 2018 and 2017.

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25. FINANCIAL INSTRUMENTS (continued)

Sensitivity analysis (continued)

	2019	2018	2017
	€m		
Profit or loss			
Loss on increase in interest rates by 1%.....	(31.6)	(17.1)	(24.1)

A 1% change in the opposite direction of the above interest rates at December 31, would have had the equal but opposite effect on the above currencies to the amounts shown above, on the basis that all other variables remain constant.

Market risk – Commodity price risk

This section discusses the Group’s exposure to the commodity contracts which are not covered under the own use exemption and are recognised as derivative instruments.

The Group is exposed to commodity price risk through fluctuations in raw material prices and sales of products. The raw material exposures result primarily from the price of crude oil and base chemicals linked to the price of crude. The sales price exposures are primarily related to petrochemicals where prices are in general linked to the market price of crude oil.

The Group enters into contracts to supply or acquire physical volumes of commodities at future dates during the normal course of business that may be considered derivative contracts. Where such contracts exist and are in respect of the normal purchase or sale of products to fulfil the Group’s requirements, the own use exemption from derivative accounting is applied.

The Group manages commodity price exposures through trading refined products and chemical feedstock and using commodity swaps, options and futures as a means of managing price and timing risks. In 2019 there was a net mark to market derivative liability in respect of commodity contracts of €44.2 million entered into by the Group to manage such risk (2018: net derivative asset of €9.7 million, 2017: net derivative liability of €2.3 million).

The Group operates within procedures and policies designed to ensure that risks, including those relating to the default of counterparties, are minimised.

Market risk – Equity price risk

The Group’s exposure to equity price risk arises from its investment in equity securities which are classified as financial assets at fair value through other comprehensive income. These financial assets are accounted for at fair value based on the present value of future cash flows where such information is readily available.

For the financial assets at fair value through other comprehensive income a 10 percent increase and decrease in transaction prices at the reporting date would have decreased and increased the loss for the year by €2.8 million (2018: €2.8 million, 2017: €2.8 million). Management consider that a change of 10 percent gives an appropriate benchmark to assess the risks that the Group is expected to be exposed to. This calculation assumes that the change occurred at the reporting date and had been applied to risk exposures existing at that date. This analysis assumes that all other variables, in particular foreign currency rates, remain constant.

Capital management

The Group’s objectives for managing capital are to safeguard the Group’s ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

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25. FINANCIAL INSTRUMENTS (continued)

The Group defines its capital employed of €7,397.9 million (2018: €7,148.8 million, 2017: €6,488.4 million) as shareholders' equity of €1,528.0 million (2018: €2,917.5 million, 2017: €1,696.8 million) and net debt (net of debt issue costs) of €5,869.9 million (2018: €4,231.3 million, 2017: €4,791.6 million).

The principal sources of debt available to the Group at December 31, 2019 include the Senior Secured Term Loans, Senior Secured Notes due 2026, Senior Secured Notes due 2025, Senior Notes due 2024, Receivables Securitisation Facility, Inventory Financing Facility, Schuldschien loan, Noretyl Facility and Koln CoGen Facility and are described in Note 19 along with the key operating and financial covenants that apply to these facilities.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, issue new shares, raise new debt or sell assets to reduce debt. The ability of the Group to pay dividends and provide appropriate facilities to the Group is restricted by the terms of principal financing agreements to which members of the Group are party.

26. LEASE OBLIGATIONS

<i>Analysed as:</i>	2019
	€m
Current lease liabilities.....	125.4
Non-current lease liabilities.....	864.4
	<u>989.8</u>

<i>Maturity analysis – contractual undiscounted cash flows:</i>	2019
	€m
Less than one year.....	187.0
Between one and five years.....	459.0
More than five years.....	485.1
Total undiscounted lease liabilities at 31 December	<u>1,131.1</u>

<i>Amounts recognized in the statement of cash flows:</i>	2019
	€m
Total cash outflow for leases.....	<u>207.1</u>

The Group has entered into a number of significant lease arrangements relating to shipping capacity in respect of the supply chain activities for the European cracker assets. These leases typically run for a period of between 10 and 15 years with options to extend after that date.

The Group does not face a significant liquidity risk with regard to its lease liabilities. Lease liabilities are monitored within the Group's treasury function.

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26. LEASE OBLIGATIONS (continued)

Prior to 1 January 2019

Finance lease liabilities

Finance lease liabilities are payable as follows:

	Minimum lease payments	Interest	Principal
	2018		
	€m		
Less than one year	0.2	(0.1)	0.1
Between one and five years	0.4	(0.3)	0.1
More than five years	6.9	(5.9)	1.0
	7.5	(6.3)	1.2

	Minimum lease payments	Interest	Principal
	2017		
	€m		
Less than one year	0.2	(0.1)	0.1
Between one and five years	0.4	(0.3)	0.1
More than five years	7.0	(5.9)	1.1
	7.6	(6.3)	1.3

Operating lease liabilities

Future aggregate minimum lease payments are as follows:

	2018	2017
	€m	
Less than one year	168.4	113.7
Between one and five years	445.5	374.8
More than five years	423.4	609.4
	1,037.3	1,097.9

27. CAPITAL COMMITMENTS

Outstanding capital expenditure authorised by the Board and for which contracts had been placed as at December 31, 2019 by the Group amounted to approximately €616.3 million (2018: €662.3 million, 2017: €807.5 million).

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28. RECONCILIATION OF NET CASH FLOW TO MOVEMENT IN NET DEBT

	<u>2019</u>	<u>2018</u>	<u>2017</u>
		€m	
(Decrease)/increase in cash and cash equivalents in the year	(1,104.6)	642.0	(701.0)
Cash (inflow)/outflow from change in debt financing.....	(514.4)	(54.1)	1,549.8
Change in net debt before issue costs resulting from cash flows.....	(1,619.0)	587.9	848.8
Foreign exchange and other net non-cash transactions.....	(26.0)	(21.8)	187.3
Movement in net debt before issue costs in year	<u>(1,645.0)</u>	<u>566.1</u>	<u>1,036.1</u>

An analysis of changes in the Group's liabilities arising from financing activities is as follows:

	<u>1 Jan 2019</u>	<u>Cash Flow</u>	<u>IFRS 16 First-time Adoption (Note 1)</u>	<u>Foreign Exchange and Other Non Cash Changes</u>	<u>31 Dec 2019</u>
	€m	€m	€m	€m	€m
Interest-bearing loans and borrowings	(6,301.4)	(531.3)	-	(20.1)	(6,852.8)
Lease liabilities	(1.2)	128.4	(899.4)	(217.6)	(989.8)
Total	<u>(6,331.9)</u>	<u>(402.9)*</u>	<u>(899.4)</u>	<u>(237.7)</u>	<u>(7,842.6)</u>

* Represents net cash used in financing activities excluding cash flows from dividends and interest paid.

An analysis of net debt before issue costs is as follows:

	<u>1 Jan 2019</u>	<u>Cash Flow</u>	<u>Foreign Exchange and Other Non Cash Changes</u>	<u>31 Dec 2019</u>
	€m	€m	€m	€m
Cash at bank and in hand.....	2,071.3	(1,104.6)	16.2	982.9
Debt due within one year	(63.7)	(163.2)	(23.7)	(250.6)
Debt due after more than one year	(6,267.0)	(351.2)	(18.5)	(6,636.7)
Total external borrowings	(6,330.7)	(514.4)	(42.2)	(6,887.3)
Net debt before issue costs	<u>(4,259.4)</u>	<u>(1,619.0)</u>	<u>(26.0)</u>	<u>(5,904.4)</u>

	<u>1 Jan 2018</u>	<u>Cash Flow</u>	<u>Foreign Exchange and Other Non Cash Changes</u>	<u>31 Dec 2018</u>
	€m	€m	€m	€m
Cash at bank and in hand.....	1,366.3	642.0	63.0	2,071.3
Debt due within one year	(64.8)	29.2	(28.1)	(63.7)
Debt due after more than one year	(6,126.9)	(83.4)	(56.7)	(6,267.0)
Finance leases	(1.3)	0.1	-	(1.2)
Total external borrowings	(6,193.0)	(54.1)	(84.8)	(6,331.9)
Net debt before issue costs	<u>(4,826.7)</u>	<u>587.9</u>	<u>(21.8)</u>	<u>(4,260.6)</u>

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28. RECONCILIATION OF NET CASH FLOW TO MOVEMENT IN NET DEBT (continued)

	1 Jan 2017	Cash Flow	Foreign Exchange and Other Non Cash Changes	31 Dec 2017
	€m	€m	€m	€m
Cash at bank and in hand.....	2,204.1	(701.0)	(136.8)	1,366.3
Debt due within one year	(77.6)	78.2	(65.4)	(64.8)
Debt due after more than one year	(7,987.9)	1,471.5	389.5	(6,126.9)
Finance leases	(1.4)	0.1	-	(1.3)
Total external borrowings	(8,066.9)	1,549.8	324.1	(6,193.0)
Net debt before issue costs	(5,862.8)	848.8	187.3	(4,826.7)

29. RELATED PARTIES

Identity of related parties with which the Group has transacted

Related parties comprise:

- Parent entities and their subsidiaries not included within the Ineos Group Holdings S.A. group;
- Entities controlled by the shareholders of Ineos Limited, the ultimate parent company of Ineos Group Holdings S.A.;
- Key management personnel; and
- Joint ventures.

Mr JA Ratcliffe, Mr AC Currie and Mr J Reece are shareholders in Ineos Limited.

Ineos Limited and Ineos AG, a subsidiary of Ineos Limited, provide operational management services to the Group through a management services agreement. Management fees of €88.0 million (2018: €85.7 million, 2017: €81.6 million) were charged to the income statement. As at December 31, 2019 amounts owed were €23.1 million (2018: €22.0 million, 2017: €21.1 million). Amounts owed to Ineos Holdings AG, a wholly owned subsidiary of Ineos AG, were €0.9 million (amounts due from Ineos Holdings AG, 2018: €0.4 million, 2017: €148.8 million).

In March 2019 the Group received €260.5 million (\$296.5 million) of proceeds in relation to the repayment of the Group's preferential interest in INEOS Investments Partnership following the sale by INEOS Investments Partnership of its assets (shares in PQ Corporation) to INEOS Limited. The Group paid the proceeds received as part of a dividend of €296.3 million to its parent company, INEOS Holdings Luxembourg S.A..

Ineos Limited owns and controls a number of operating subsidiaries that are not included in the Ineos Group Holdings S.A. group, including INOVYN Limited, Ineos Industries Limited (which from September 1, 2017 includes the Grangemouth petrochemical subsidiaries), INEOS Enterprises Holdings Limited and the Lavéra petrochemical assets and businesses together with other French and Italian assets of INEOS O&P South.

During the year ended December 31, 2019 the Group has made sales to these subsidiaries of €977.4 million (2018: €1,182.6 million, 2017: €987.1 million), recovered costs of €68.1 million (2018: €107.5 million, 2017: €135.1 million) and made purchases of €1,299.9 million (2018: €1,469.7 million, 2017: €1,624.9 million). As at December 31, 2019, €443.3 million (2018: €430.9 million, 2017: €393.8 million) was owed by and €151.9 million (2018: €111.0 million, 2017: €164.5 million) was owed to these subsidiaries (excluding the Grangemouth shareholder loan, the INEOS Upstream Limited loan and transactions and balances with Styrolution).

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29. RELATED PARTIES (continued)

During 2015 the Group provided a loan of \$623.7 million to INEOS Upstream Limited, a related party, in connection with its acquisition of natural gas assets in the North Sea. The loan facility is unsecured and matures on October 26, 2020 and bears interest at 7% per annum. On September 29, 2017, INEOS Upstream Limited, a related party, acquired further natural gas assets in the North Sea through its acquisition of the entire oil and gas business of DONG Energy A/S. In connection with the DONG Acquisition, the Group advanced a loan of \$376.2 million (€315.7 million) to INEOS Upstream Limited, the proceeds of which were on lent to certain of its subsidiaries. The loan is unsecured and matures in June 2022 and bears interest at 7% per annum. During 2018 net loan repayments of \$122.5 million (€105.4 million) were received (2017: net loan repayments of \$142.7 million (€121.4 million)). As at December 31, 2019 \$617.1 million (€550.8 million) (2018: \$617.1 million (€539.7 million), 2017: \$739.6 million (€619.5 million)) was outstanding under the facility.

Following the divestment of the Grangemouth petrochemical business in 2013 the Group put in place a €200 million shareholder loan facility to fund the ongoing operations and investments required at the site. During the year ended December 31, 2017 INEOS Grangemouth plc repaid the Group €127.0 million in full repayment (including accrued interest) of the shareholder loan facility. In July 2019 INEOS Grangemouth plc entered in to a new €350.0 million Senior Term Loan and Revolving Credit facility and the shareholder loan facility was cancelled in full.

Identity of related parties with which the Group has transacted (continued)

Styrolution was previously a 50-50 joint venture between Ineos Industries Limited, a related party, and BASF. On November 17, 2014 Ineos Industries Limited completed the acquisition of BASF's 50% share in Styrolution for a purchase price of €1.1 billion. During 2016 Styrolution refinanced its capital structure and the Group invested €250 million in Styrolution Term Loan debt which was issued during September 2016. During the year ended December 31, 2017 Styrolution paid €7.7 million of interest relating to the Term Loan debt. In October 2017 the Term Loan was fully repaid to the Group. During the year ended December 31, 2019 the Group has made sales to Styrolution of €338.7 million (2018: €346.3 million, 2017: €420.1 million), recovered costs of €9.8 million (2018: €7.5 million, 2017: €8.0 million) and made purchases of €15.3 million (2018: €19.4 million, 2017: €7.9 million). As at December 31, 2019, €27.8 million (2018: €34.1 million, 2017: €45.9 million) was owed by Styrolution and €2.1 million (2018: €4.1 million, 2017: €3.5 million) was owed to Styrolution.

Ineos Limited owns interests in a number of joint ventures that are not included in the Ineos Group Holdings S.A. group, including the French joint ventures associated with the Lavera petrochemical assets and businesses which were divested by the Group on July 1, 2014, the refining joint ventures between PetroChina and INEOS Investments (Jersey) Limited, a related party and a joint venture with Sasol Limited to build and operate a HDPE plant at Battleground site in Texas, USA which became operational at the end of 2017.

During the year ended December 31, 2019 the Group made sales of €0.1 million (2018: €0.1 million, 2017: €0.1 million), recovered costs of €0.5 million (2018: € nil, 2017: €0.2 million) and made purchases of €0.2 million (2018: € nil, 2017: € nil) from the French joint ventures. As at December 31, 2019 €0.3 million (2018: €0.1 million, 2017: €0.1 million) was owed by the French joint ventures and €0.2 million (2018: € nil, 2017: € nil) was owed to the French joint ventures.

The Refining joint ventures are between PetroChina and INEOS Investments (Jersey) Limited, a related party. During the year ended December 31, 2019 the Group made sales to the Refining joint ventures of €nil (2018: €0.6 million, 2017: €nil), recovered costs of €8.6 million (2018: €5.4 million, 2017: €24.5 million) and made purchases of €221.4 million (2018: €379.3 million, 2017: €164.1 million). As at December 31, 2019, €0.8 million (2018: €1.4 million, 2017: €0.6 million) was owed by the Refining joint ventures and €25.5 million (2018: €21.2 million, 2017: €14.9 million) was owed to the Refining joint ventures.

During the year ended December 31, 2019 the Group made sales to the HDPE joint venture of €nil (2018: €5.6 million, 2017: €nil), recovered costs of €59.1 million (2018: €58.4 million, 2017: €0.1 million) and made purchases of €47.9 million from the HDPE joint venture. As at December 31, 2019, €5.6 million was

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29. RELATED PARTIES (continued)

owed by and €5.1 million was owed to (2018: €0.5 million was owed to, 2017: €2.5 million was owed by) the HDPE joint venture.

During 2019 the Group entered into a number of derivative contracts with INEOS UK SNS Limited and INEOS Energy Trading Limited, both related parties. The net fair value loss on these derivatives during the year ended December 31, 2019 was €80.3 million. As at December 31, 2019, the mark to market derivative asset was €15.3 million and the mark to market liability was €54.5 million in respect of these related party derivative financial instruments (see Note 15).

Compensation to key management personnel (including directors)

The Group defines key management as the directors of the Company. Details of Directors' remuneration are given in Note 7.

30. ULTIMATE PARENT UNDERTAKING AND CONTROLLING PARTY

The immediate parent undertaking is Ineos Holdings Luxembourg S.A.. The ultimate parent undertaking at December 31, 2019 was Ineos Limited, a company registered in the Isle of Man. The ultimate controlling party is Mr JA Ratcliffe, director and majority shareholder of the ultimate parent undertaking. Ineos Group Holdings S.A. and its subsidiaries are not included within any other consolidated financial statements.

31. ACCOUNTING ESTIMATES AND JUDGEMENTS

The Group prepares its consolidated financial statements in accordance with IFRSs, which require management to make judgements, estimates and assumptions which affect the application of the accounting policies, and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates. The estimates and assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimates change and in any future periods.

Critical accounting judgements in applying the Group's accounting policies

The key accounting judgement taken in the preparation of these financial statements relates to our interest in the refining business formerly owned by Group (see Note 12). The refining Business is now owned by Petro China and INEOS Investments (Jersey) Limited ("II(J)L"), which in turn is held under common control by the Group's controlling Shareholders. The Group has an economic interest in II(J)L via non-voting ordinary shares in II(J)L.

The Group has evaluated its interest in II(J)L and in the refining business, and has concluded that it has effective control over II(J)L by virtue of the facts that the Group is subject to exposure and rights to the variable returns from II(J)L, II(J)L is held under common control with the Group's controlling shareholder and has the same directors as the Group. As a result, II(J)L is treated as a subsidiary of the Group, and therefore the Refining business is treated as a jointly venture under the equity accounting method, and the company reflects its 50% share in the profits and losses of the refining Business in its income statement. (see also Note 1, Accounting policies).

Key sources of estimated uncertainty

Estimates and associated assumptions are based on historical experience and other factors that the Group believe are reasonable, including assets and expected economic conditions, and in certain cases actuarial assumption. Although these estimates are based on the Group's knowledge of current events and circumstances, actual numbers may differ.

Taxation

Management is required to estimate the tax payable in each of the jurisdictions in which the Group operates. This involves estimating the actual current tax charge or credit together with assessing temporary differences resulting from differing treatment of items for tax and accounting purposes. The calculation of the Group's total tax charge necessarily involves a significant degree of estimation in respect of certain items

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31. ACCOUNTING ESTIMATES AND JUDGEMENTS (continued)

whose tax treatment cannot be finally determined until resolution has been reached with the relevant tax authority, or, as appropriate, through a formal legal process.

The Group has, from time to time, contingent tax liabilities arising from trading and corporate transactions in the countries in which it operates. After appropriate consideration, management makes provision for these liabilities based on the probable level of economic loss that may be incurred and which is reliably measurable.

The breadth of the Group's structure with operations in many geographic locations makes the use of estimates and assumptions more challenging. The resolution of issues is not always within the control of the Group and can be reliant upon the efficiency of the legal processes in the relevant jurisdictions in which the Group operates, and as a result, issues can, and often do take many years to resolve.

Details of amounts recognised with regard to taxation are disclosed in Notes 9 and 16. Note 9 shows tax adjustments in respect of prior years of €5.6 million but this has been higher in previous periods and material adjustments may arise in future years.

Impairment

Goodwill impairment testing is performed annually or if there is an indication of impairment. Goodwill impairments tests are based on cash generating units and compare the recoverable amount of the unit with the respective carrying amount. The recoverable amount of an asset or cash generating unit is the higher of its fair value less costs of disposal and its value in use. The value in use is determined using a discounted cash flow method, considering earnings forecasts of the unit. The management of the Group identified the operating segments as cash generating units (CGU) for purposes of testing goodwill for impairment. Each unit or group of units to which goodwill is allocated to shall represent the lowest level within the entity at which the goodwill is monitored for internal management purpose. The goodwill is internally monitored at the level of business units.

Impairment losses on intangible assets and property, plant and equipment are recognised when the recoverable amount of the cash generating unit which includes the asset is lower than the respective carrying amount. In accordance with the definition of a cash generating unit under IAS 36, the individual production plants generally do not represent separate cash generating units, but are part of larger asset groups that form the cash generating units. Since the assessment whether goodwill or property, plant and equipment are impaired is based on long-term business plans for the cash generating units and the determination of an appropriate discount rate, management used significant estimates and assumptions in making these assessments.

Details on the estimates used for the goodwill impairment test are disclosed in Note 11.

The Group currently has significant headroom across all its business segments, but monitors the principal risk and uncertainties set out in the Management Report when assessing its business. After applying the sensitivities the business unit with the least amount of headroom is the Nitriles business, which has an excess recoverable amount of €135 million over the carrying amount.

Post-retirement benefits

The Group operates a number of defined benefit post employment schemes. Under IAS 19 Revised Employee Benefits, management is required to estimate the present value of the future defined benefit obligation of each of the defined benefit schemes. The costs and year end obligations under defined benefit schemes are determined using actuarial valuations. The actuarial valuations involve making numerous assumptions, including:

- Future rate of increase in salaries;
- Inflation rate projections;
- Discount rate for scheme liabilities; and
- Expected rates of return on the scheme assets.

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31. ACCOUNTING ESTIMATES AND JUDGEMENTS (continued)

Details of post-retirement benefits and sensitivities on key assumptions are set out in Note 21.

32. SUBSEQUENT EVENTS

The withdrawal agreement under which the United Kingdom will leave the European Union was ratified on 31 January 2020. This has started a transition period until the end of December 2020. The Group has limited activities in the United Kingdom so does not expect a significant financial impact on its business from Brexit.

The Group is closely monitoring the evolution of the COVID-19 coronavirus and is following the World Health Organisation travel advice. With regards to business impact, the effect the virus will have on the global economy and the chemicals industry is difficult to assess at this point in time, although the Group is constantly evaluating the situation and monitoring any potential effects on production and deliveries.