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Catafor®

Conductivity additives and antistatic agents for use in safety footwear, coatings and other industrial applications

Industrial Formulations

Why are Catafor® products used?

Catafor®products are used to prevent the build up of static electricity or to dissipate it, thereby removing the possibility of electrostactic discharge (E.S.D.).

The main sources of E.S.D. are

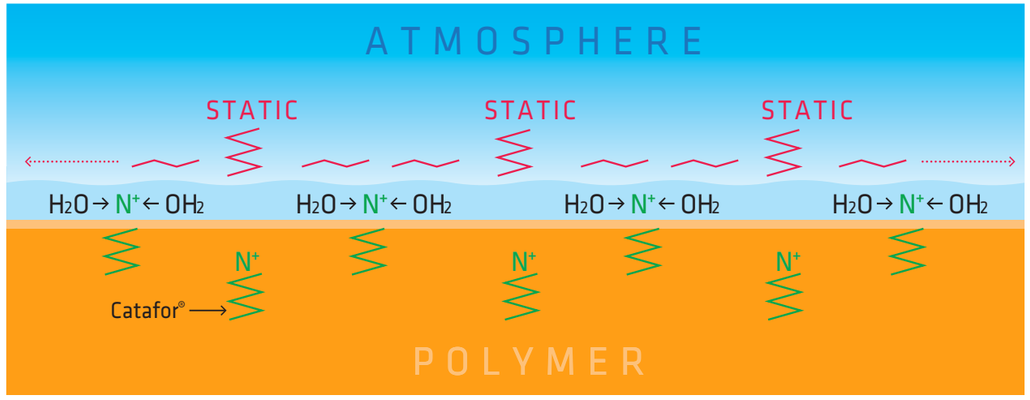
- The electrostatic charge which occurs naturally in a person's body.
- Triboelectric charging occurs on the surfaces of materials which have come into contact with one another and have been separated quickly.
- The electrostatic field generated by a charged object can induce E.S.D. to occur when a non charged object is placed within this field.

Consequences of E.S.D.

- Electronic equipment failure
- Risk of serious spark discharge causing materials to ignite
- Dust and dirt adhesion
- Dust explosion
- Processing

How does Catafor® work?

Internal Antistat



Catafor® is incorporated into the polymer matrix. It captures water from the atmosphere to form a film on the surface of the polymer.*

Any static electricity which comes into contact with the polymer is therefore conducted away through the water film. The effect is permanent.

External Antistat

Catafor® can also be applied directly to a surface to form a lubricious film which acts to reduce triboelectric charging as well as attracting water which allows a degree of conduction. The effect allows a degree of temporary conduction.

* This mechanism only applies to cationic Catafor® and not to inorganic Catafor®.

Catafor® Product range

Catafor® is a complete range of internal antistatic products that fulfil every customer need.

- Excellent electro static discharge properties
- Permanent protection
- Compatible with material properties

Three chemistries:
- Quaternary ammonium ethosulfate
- Alkali metal salts
- Anionic additives

Dissolved in various solvents
- Reactive and nonreactive solvents, liquid and solid grades
- Low and high flash point solvents
- Solid under flakes form

Cationic Catafor® grades

Grade	Active content	Solvent	Main Applications	Benefits
Catafor® PU	80%	Butane-1,4 diol reactive	- High density PU shoe soles - Conveyor belts	High efficiency excellent polymer compatibility
Catafor® F	80%	Ethane-1,2 diol reactive		
Catafor® CA80	80%	n-Butanol reactive	- Electrostatic spray painting - Floor Coatings - Inks - Cleaners	Reduced paint loss

Benefits
- Control of electrostatic discharge at low concentration
- Permanent antistatic protection
- Minimal effect on processing reactivity
- Minimal effect on other polymer properties
- Soluble and stable in polyol components
- Moderate toxicity
- Free from corrosive chloride ions

Inorganic Catafor® grade

Grade	Solvent	Main Application	Benefits
Catafor® MS-T	Triethylphosphate TEP Non reactive	Low density PU packaging foam	Not sensitive to relative humidity. Active has great heat stability (>500°C). In addition MS-T is more concentrated and free of glycol ethers.

Benefits
- Effective in dry and humid conditions
- Greater heat stability up to 500°C
- Compatible with high temperature polymer processing
- Static control additive developed for polyurethane
- Does not contain amine derived chemicals

Anionic Catafor® grade

Grade	Active content	Solvent	Main Application	Benefits
Emulsifier® E30	94%	None (solid grade)	Anti-static agent for plastics (PVC, PET ...)	Heat stability up to 350°C Food contact approval

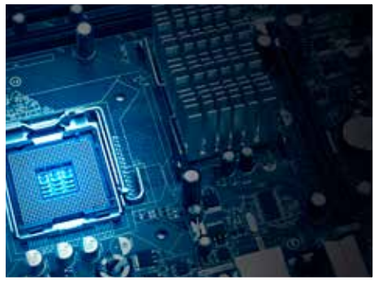
Benefits
- Food contact approval
- Permanent antistatic protection
- Compatible with high temperature polymer processing
- Minimal effect on processing reactivity
- Minimal effect on other polymer properties
- Free from corrosive chloride ions
- Universal

Applications

Safety Footwear

Catafor additives are very effective anti-stat for safety footwear used in different applications (industry, hospitals...). These antistatic agents can be used for Safety Footwear in polyurethane and/or rubber.

Catafor® is directly added in the formulation, by dissolution in the polyol component.



Polyurethane Foam

Flexible polyurethane foam is used widely as a cushioning material in packaging foam for electronic components and microchips.

Catafor® is directly added in the formulation, by dissolution in the polyol component.

Elastomers

Antistatic elastomer systems used in the manufacture of conveyor belt rollers and pulleys and trolley tires. Catafor® F, Catafor® PU or Catafor® MS-T are the best products for elastomer applications.

Cleaners

Use of antistatic agents in household cleaners in Homecare for different applications

- Furniture cleaners
- Carpet cleansing
- Household Kitchen cleaners
- Furniture polish
- Car appearance and maintenance products
- Floor cleansing sprays

Catafor® CA80 is the best product for this application.

Coatings

Catafor® additives are efficient for coatings formulation based on different polymers (polyurethane, epoxy, acrylics...).

- **Electrostatic Spray Painting**
  Electrostatic Spray Painting is a manufacturing process that employs charged particles to more efficiently paint a workpiece (Automotive, biking...).

  Catafor® CA80 is recommended for:
  - Uniform application
  - Control of droplets size and direction
  - Reduced attraction of dust
  - Excellent « round the edge » coating
  - Reduced paint loss

- **Floor Coating**
  Coating materials are generally electrical insulators, on which high surface charges can accumulate during the production, processing and use of articles produced. Undesired effects and serious risks, extending from attraction of dust, adhesion of hygienic contaminants, disruption of electronic...

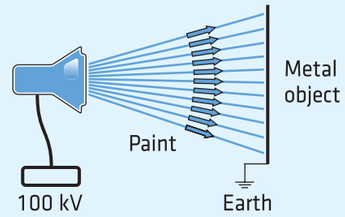
  Catafor® is used in floor coatings (clean room, electronic and electrical industry, hospitals) to inhibit the static charging.

- **Inks**
  - **Antistatic agent for ink formulation**
    Printing of plastic material can be an issue due to accumulation of charges in plastic materials. The consequences are uneven ink deposit, splashing of the applied ink film (spider threads) at the edges of the printed image and bad ink transfer from mesh to substrate. To avoid static charge, the surfaces of the materials and the surrounding area have to be sufficiently conductive.

    Catafor CA80 is the best product for this application.

  - **Antistatic agent for ink cleaner or deco paint**
    Soft cloths are embedded with an anti-static agent such as Catafor® CA80 that removes dust from film positives, mesh stencil films without leaving any residue.

    Catafor is added in a post-addition or while blending / homogenising.



Catafor® CA80 can also be formulated in conventional paint formulations to provide electrostatic protection to the dry paint film.