

### Material Name: AMMONIA, ANHYDROUS

### SDS ID: MAT01050

# \* \* \* Section 1 - PRODUCT AND COMPANY IDENTIFICATION \* \* \*

### Material Name: AMMONIA, ANHYDROUS

### **Manufacturer Information**

MATHESON TRI-GAS, INC.	General Information: 1-800-416-2505				
150 Allen Road, Suite 302	Emergency #: 1-800-424-9300 (CHEMTREC)				
Basking Ridge, NJ 07920	Outside the US: 703-527-3887 (Call collect)				

### **Chemical Family**

inorganic, gas

### Synonyms

MTG MSDS 4; ANHYDROUS AMMONIA; AMMONIA GAS; AMMONIA; SPIRIT OF HARTSHORN; AMMONIA, ANHYDROUS, LIQUIFIED; UN 1005; H3N; RTECS: BO0875000

### **Product Use**

industrial

### Usage Restrictions

none known

## \* \* \* Section 2 - HAZARDS IDENTIFICATION \* \* \*

### EMERGENCY OVERVIEW

Color: colorless

Physical Form: liquefied gas

Odor: pungent odor

Health Hazards: respiratory tract burns, skin burns, eye burns, mucous membrane burns

Physical Hazards: Containers may rupture or explode if exposed to heat.

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### POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: burns

Long Term: burns

### Skin

Short Term: burns

Long Term: burns

### Eye

Short Term: burns

Long Term: burns

### Ingestion

Short Term: burns

Long Term: burns

## \* \* \* Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS \* \* \*

CAS	Component	Percent
7664-41-7	AMMONIA, ANHYDROUS	100.0

## \* \* \* Section 4 - FIRST AID MEASURES \* \* \*

### Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

### Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

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### Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion

Rinse mouth out with water. DO NOT induce vomiting. Get medical attention immediately.

#### **Note to Physicians**

For inhalation, consider oxygen.

## \* \* \* Section 5 - FIRE FIGHTING MEASURES \* \* \*

See Section 9 for Flammability Properties

### NFPA Ratings: Health: 3 Fire: 1 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### **Flammable Properties**

Moderate explosion hazard. Containers may rupture or explode if exposed to heat.

### Extinguishing Media

carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

### **Unsuitable Extinguishing Media**

None known.

### **Protective Equipment and Precautions for Firefighters**

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

### **Fire Fighting Measures**

Do not get water inside container. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry. Stop flow of gas. Do not attempt to extinguish fire unless flow of material can be stopped first.

### Thermal Decomposition Products

### Material Name: AMMONIA, ANHYDROUS

Combustion: ammonia, oxides of nitrogen

# \* \* \* Section 6 - ACCIDENTAL RELEASE MEASURES \* \* \*

### Air Release

Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

### Soil Release

Trap spilled material at bottom in deep water pockets, excavated holding areas or within sand bag barriers. Dike for later disposal. Add dilute acid. Absorb with sand or other non-combustible material.

### Water Release

Collect spilled material using mechanical equipment.

### **Occupational spill/release**

Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

## \* \* \* Section 7 - HANDLING AND STORAGE \* \* \*

### Handling Procedures

Keep away from heat, sparks and flame. When using, do not eat, drink or smoke. Do not breathe gas, fumes, vapor, or spray. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation.

### Storage Procedures

Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.111. Protect from physical damage. Store outside or in a detached building. Inside storage: Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances. Store in a cool, dry place. Store in a well-ventilated area. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B). Protect from sunlight.

## \* \* \* Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION \* \* \*

### **Component Analysis**

### AMMONIA, ANHYDROUS (7664-41-7)

ACGIH: 25 ppm TWA

35 ppm STEL

OSHA (final): 50 ppm TWA; 35 mg/m3 TWA

OSHA (vacated): 35 ppm STEL; 27 mg/m3 STEL

NIOSH: 35 ppm STEL; 27 mg/m3 STEL

25 ppm TWA; 18 mg/m3 TWA

### **Component Biological Limit Values**

There are no biological limit values for any of this product's components.

### IDLH

300 ppm

### Ventilation

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

### PERSONAL PROTECTIVE EQUIPMENT

### **Eyes/Face**

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

### **Protective Clothing**

Wear appropriate chemical resistant clothing.

### **Glove Recommendations**

Wear appropriate chemical resistant gloves.

### **Respiratory Protection**

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

250 ppm

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Any air-purifying half-mask respirator equipped with cartridge(s) providing protection against the compound of concern.

Any supplied-air respirator.

300 ppm

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with cartridge(s) providing protection against this substance.

Any air-purifying full-facepiece respirator equipped with cartridge(s) providing protection against the compound of concern.

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.

Any appropriate escape-type, self-contained breathing apparatus.

## \* \* \* Section 9 - PHYSICAL AND CHEMICAL PROPERTIES \* \* \*

Physical State:	Gas	Appearance:	Not available
Color:	colorless	Physical Form:	liquefied gas
Odor:	pungent odor	Odor Threshold:	1 - 5 ppm
pH:	11.6 @ 25 °C	pH (solution):	1.0 N
Melting/Freezing Point:	-78 °C	Boiling Point:	-33 °C
Flash Point:	Not available	Decomposition:	Not available
LEL:	15 %	UEL:	28 %
Vapor Pressure:	6658 mmHg @ 21 °C	Vapor Density (air = 1):	0.5967
Density:	0.7067 g/L @ 25 °C	Water Solubility:	38 % @ 20 °C
Log KOW:	0.03	Auto Ignition:	651 °C
Viscosity:	0.475 cP @ -69 °C	Molecular Weight:	17.03
Molecular Formula:	N-H3		

### **Solvent Solubility**

Soluble: methanol, ethanol, chloroform, ether, organic solvents

## \* \* \* Section 10 - STABILITY AND REACTIVITY \* \* \*

### **Chemical Stability**

Stable at normal temperatures and pressure.

### **Conditions to Avoid**

Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat. Avoid heat, flames, sparks and other sources of ignition.

### Materials to Avoid

acids, combustible materials, metals, oxidizing materials, metal salts, halo carbons, halogens, amines, reducing agents, cyanides, bases

Combustion: ammonia, oxides of nitrogen

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### **Possibility of Hazardous Reactions**

Will not polymerize.

## \* \* \* Section 11 - TOXICOLOGICAL INFORMATION \* \* \*

### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

### AMMONIA, ANHYDROUS (7664-41-7)

Inhalation LC50 Rat 5.1 mg/L 1 h; Inhalation LC50 Rat 2000 ppm 4 h; Oral LD50 Rat 350 mg/kg

### Acute Toxicity Level

### AMMONIA, ANHYDROUS (7664-41-7)

Toxic: inhalation.

### **Component Carcinogenicity**

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

### Irritation

From human experience the gas is recognized as a skin and eye irritant.

### Local Effects

### AMMONIA, ANHYDROUS (7664-41-7)

**Corrosive:** inhalation, skin, eye, ingestion.

### Medical Conditions Aggravated by Exposure

eye disorders, respiratory disorders, skin disorders and allergies

### **Reproductive Effects**

No data available.

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### \* \* \* Section 12 - ECOLOGICAL INFORMATION \* \* \*

### **Component Analysis - Aquatic Toxicity**

### AMMONIA, ANHYDROUS (7664-41-7)

Fish: 96 Hr LC50 Cyprinus carpio: 0.44 mg/L; 96 Hr LC50 Lepomis macrochirus: 0.26 - 4.6 mg/L; 96 Hr LC50 Lepomis macrochirus: 1.17 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.73 - 2.35 mg/L; 96 Hr LC50 Pimephales promelas: 5.9 mg/L [static]; 96 Hr LC50 Poecilia reticulata: >1.5 mg/L; 96 Hr LC50 Poecilia reticulata: 1.19 mg/L [static]

Invertebrate: 48 Hr LC50 Daphnia magna: 25.4 mg/L

## \* \* \* Section 13 - DISPOSAL CONSIDERATIONS \* \* \*

### **Disposal Methods**

Dispose in accordance with all applicable regulations.

### **Component Waste Numbers**

The U.S. EPA has not published waste numbers for this product's components.

## \* \* \* Section 14 - TRANSPORT INFORMATION \* \* \*

### **US DOT Information**

Shipping Name: Ammonia, anhydrous

UN/NA #: UN1005 Hazard Class: 2.2

Required Label(s): 2.2,2.3, 8

Additional Info.: Toxic-Inhalation Hazard Zone D

### **TDG Information**

Shipping Name: Ammonia, anhydrous

UN #: UN1005 Hazard Class: 2.2

Required Label(s): 2.2, (8)

### \* \* \* Section 15 - REGULATORY INFORMATION \* \* \*

### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

### AMMONIA, ANHYDROUS (7664-41-7)

SARA 302:	500 lb TPQ
SARA 304:	100 lb EPCRA RQ
SARA 313:	1.0 % de minimis concentration (includes anhydrous ammonia and aqueous ammonia from water dissociable ammonium salts and other sources, 10% of total aqueous ammonia is reportable under this listing)
CERCLA:	100 lb final RQ; 45.4 kg final RQ
OSHA (safety):	10000 lb TQ (anhydrous); 15000 lb TQ (solution, >44% Ammonia by weight)

### SARA 311/312

Acute Health: Yes Chronic Health: No Fire: No Pressure: Yes Reactive: No

### **U.S. State Regulations**

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
AMMONIA, ANHYDROUS	7664-41-7	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

### Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

### AMMONIA, ANHYDROUS (7664-41-7)

1 %

### **Component Analysis - Inventory**

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
AMMONIA, ANHYDROUS	7664-41-7	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

### \* \* \* Section 16 - OTHER INFORMATION \* \* \*

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU -Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act: CN - China: CPR -Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances: EPA - Environmental Protection Agency: EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR -New Jersey Trade Secret Registry: NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID -European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US -United States

### **Other Information**

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