

Conforms: GHS (rev 3)(2009)

(This Safety Data Sheet conforms to the requirements of the Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012.) - United States

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Version : 1.0



SAFETY DATA SHEET

Anhydrous Ammonia

Section 1. Identification

Product name : Anhydrous Ammonia
Other means of identification : ammonia, anhydrous
Product type : gas (Liquefied gas.)
Product code : PA0013

Uses

Area of application : Professional applications
Material uses : Fertilizers.

Supplier

Supplier's details : Yara North America, Inc.

Address

Street : 100 North Tampa Street, Suite 3200
Postal code : 33602
City : TAMPA
Country : United States

Telephone number : +1 813 222 5700
Fax no. : +1 813 875 5735
e-mail address of person : yna-hesq@yara.com
responsible for this SDS
Emergency telephone number : US: Chemtrec 24-hours Emergency Response: 1-800-424-
(with hours of operation) 9300
Canada: 24 Hour Emergency Service, (Canutec 613-996-
6666)

National advisory body/Poison Center

Name : The National Poisons Emergency number
Telephone number : 1 800 222 1222

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard
Communication Standard (29 CFR 1910.1200).

Classification and labelling have been performed following the guidelines and recommendation
of GHS and the intended use.

Classification of the : FLAMMABLE GASES - Category 2
substance or mixture : GASES UNDER PRESSURE - Liquefied gas
ACUTE TOXICITY (inhalation) - Category 3

SKIN CORROSION/IRRITATION - Category 1B
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
 AQUATIC TOXICITY (ACUTE) - Category 1

GHS label elements**Hazard pictograms****Signal word**

: Danger

Hazard statements

: Flammable gas.
 Contains gas under pressure; may explode if heated.
 Toxic if inhaled.
 Causes severe skin burns and eye damage.
 Very toxic to aquatic life.
 Toxic to aquatic life with long lasting effects.

Precautionary statements**Prevention**

: Wear protective gloves/clothing and eye/face protection. Do not breathe gas or vapour. Keep away from heat, sparks and open flames. - No smoking. Avoid release to the environment.

Response

: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

Storage

: Protect from sunlight and store in well-ventilated place.

Hazards not otherwise classified

: Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients**Substance/mixture**

: Substance

CAS number/other identifiers**Other means of identification**

: ammonia, anhydrous

CAS number

: 7664-41-7

Product / ingredient name	CAS number	%
Ammonia	CAS: 7664-41-7	99.5 - 100

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open. Check for and remove any contact lenses. Get medical attention immediately.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Flush contaminated skin with plenty of water. Get medical attention immediately. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Chemical burns must be treated promptly by a physician.
- Ingestion** : As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage. Liquid can cause burns similar to frostbite.
- Inhalation** : Toxic if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : Causes severe burns. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : May cause burns to mouth, throat and stomach. Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
frostbite (Cryogenic burn)
- Inhalation** : wheezing and breathing difficulties
asthma
Adverse symptoms include the following:
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
frostbite (Cryogenic burn)
- Ingestion** : Adverse symptoms may include the following:
frostbite (Cryogenic burn)

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist

immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : In case of fire, allow gas to burn if flow cannot be shut off immediately. Use an extinguishing agent suitable for the surrounding fire. Apply water from a safe distance to cool container and protect surrounding area.
- Unsuitable extinguishing media** : Do not direct water at spill or source.
- Specific hazards arising from the chemical** : Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials: nitrogen oxides
Avoid breathing dusts, vapors or fumes from burning materials.
In case of inhalation of decomposition products in a fire, symptoms may be delayed.
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and material for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Do not breathe gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed

and sealed until ready for use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Ammonia	<p>OSHA PEL 1989 (1989-03-01) Short Term Exposure Limit (STEL) 27 mg/m³, 35 ppm</p> <p>OSHA PEL (1993-06-30) PEL: Permissible Exposure Level 35 mg/m³, 50 ppm</p> <p>NIOSH REL (1994-06-01) Time Weighted Average (TWA) 18 mg/m³, 25 ppm</p> <p>NIOSH REL (1994-06-01) Short Term Exposure Limit (STEL) 27 mg/m³, 35 ppm</p> <p>ACGIH TLV (1994-09-01) TLV-TWA: Threshold Limit Value - Time weighted average PEL: Permissible Exposure Level 17 mg/m³, 25 ppm</p> <p>ACGIH TLV (1994-09-01) TLV-STEL: Threshold Limit Value - Short Time Exposure Level 24 mg/m³, 35 ppm</p>

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : A washing facility or water for eye and skin cleaning purposes should be present.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead. Recommended: full-face mask

Skin protection

Hand protection

- : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn.
> 8 hours (breakthrough time): butyl rubber, PTFE, Viton
< 1 hour (breakthrough time): Insulated gloves suitable for low temperatures

Body protection

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection

- : Appropriate footwear and any additional skin protection measures should be selected based on the task being

- performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: ammonia filter (Type K) self-contained breathing apparatus (SCBA)
- Personal protective equipment (Pictograms)** :



Section 9. Physical and chemical properties

Appearance

- Physical state** : gas [Liquefied gas.]
- Color** : Colorless.
- Odor** : Pungent.
- Odor threshold** : 5 ppm
- pH** : Not determined.
- Melting/freezing point** : Decomposes: -78 °C (108.40- °F)
- Boiling/condensation point** : -33 °C
(27.40- °F)
- Sublimation temperature** : Not determined.
- Flash point** : Not determined.
- Evaporation rate** : Not determined.
- Flammability** : Not determined.
- Lower and upper explosive (flammable) limits** : **Lower:** 15 %(V)
Upper: 27 %(V)
- Vapor pressure** : 8,611 hPa @ 20 °C (68.00 °F)
- Vapor density** : 0.6 [Air = 1]
- Relative density** : 0.682 @ -33.4 °C (28.12- °F)
- Solubility** : Not determined.
- Solubility in water** : 510 - 531 g/l @ 20 °C (68.00 °F)
- Partition coefficient: n-octanol/water** : Not determined.
- Auto-ignition temperature** : 651 °C (1203.80 °F)
- Decomposition temperature** : -78 °C (108.40- °F)
- Viscosity** : **Dynamic:** 0.22 mPa.s
Kinematic: Not determined.
- Explosive properties** : Not determined.
- Oxidizing properties** : None.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
- Incompatible materials** : Reacts violently with halogens.
Reactive with acids and oxide.
Corrosive to galvanized metal.
Corrosive to brass, Cu, Zn, Au, Ag and Hg.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product / ingredient name	Result	Species	Dose	Exposure	References
Ammonia					
	LC50 Inhalation	Rat	9.85 mg/l	1 h	IUCLID 5
	LC50 Inhalation	Rat	7.939 mg/l	1 h	IUCLID 5

- Conclusion/Summary** : Toxic by inhalation.

Irritation/Corrosion

Conclusion/Summary

- Skin** : Corrosive.
- Eyes** : Causes serious eye damage.
- Respiratory** : Corrosive to the respiratory system.

Sensitization

Conclusion/Summary

- Skin** : Not sensitizing
- Respiratory** : Not sensitizing

Mutagenicity

- Conclusion/Summary** : No mutagenic effect.

Carcinogenicity

Product / ingredient name	Result	Species	Dose	Exposure	References
Ammonia	Negative - Oral - NOAEL 453 Combined Chronic Toxicity/Carcinogenicity Studies	Rat	67 mg/kg bw/day	-	IUCLID 5

Conclusion/Summary : No carcinogenic effect.

Reproductive toxicity

Product / ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure	References
Ammonia	-	Negative	-	Rat	Oral: 408 mg/kg bw/day OECD 422	28 days	IUCLID 5
Ammonia	-	-	Negative	Rabbit	Oral: 100 mg/kg bw/day OECD 414	28 days	IUCLID 5
Ammonia	-	-	Negative	Pig	Inhalation: 25 mg/m ³	6 weeks	IUCLID 5

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

No known significant effects or critical hazards.

Specific target organ toxicity (repeated exposure)

No known significant effects or critical hazards.

Aspiration hazard

No known significant effects or critical hazards.

Information on the likely routes of exposure : Routes of entry anticipated:., Inhalation

Potential acute health effects

Eye contact : Causes serious eye damage. Liquid can cause burns similar to frostbite.

Inhalation : Toxic if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

- Skin contact** : Causes severe burns. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : May cause burns to mouth, throat and stomach. Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
frostbite (Cryogenic burn)
- Inhalation** : wheezing and breathing difficulties
asthma
Adverse symptoms include the following:
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
frostbite (Cryogenic burn)
- Ingestion** : Adverse symptoms may include the following:
frostbite (Cryogenic burn)

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

- Conclusion/Summary** : Corrosive to the respiratory tract.
- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
frostbite (Cryogenic burn)

Inhalation : wheezing and breathing difficulties
asthma
Adverse symptoms include the following:

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
frostbite (Cryogenic burn)

Ingestion : Adverse symptoms may include the following:
frostbite (Cryogenic burn)

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product / ingredient name	Result	Species	Exposure	References
Ammonia				
	Acute LC50 0.89 mg/l Fresh water	Fish - Labeo boga	96 h	IUCLID 5
	Acute LC50 101 mg/l Fresh water	Aquatic invertebrates. - Daphnia	48 h	IUCLID 5
	Acute EC50 2,700 mg/l Fresh water	Aquatic plants - Heterosigma akashiwo	18 d	IUCLID 5
	Chronic NOEC < 0.048 mg/l Fresh water 215 Fish, Juvenile Growth Test	Fish - Ictalurus punctatus	31 d	IUCLID 5
	Chronic NOEC 0.79 mg/l Fresh water	Aquatic invertebrates. - Daphnia	96 h	IUCLID 5

Conclusion/Summary : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Persistence/degradability

Conclusion/Summary : The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Product / ingredient name	LogPow	BCF	Potential
Ammonia	0.23	-	low

Conclusion/Summary : No known significant effects or critical hazards.

Mobility in soil

- Soil/water partition coefficient (KOC) : Not available.
- Mobility : Not available.
- Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Product

- Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.


United States - RCRA Acute hazardous waste "P" List:

Not listed


United States - RCRA Toxic hazardous waste "U" List:


Not listed


Section 14. Transport information


Regulation: UN Class	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
14.6 Additional information <u>Environmental hazards</u>	: Yes.

Regulation: IMDG	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS

14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
14.6 Additional information	
<u>IMDG Code Segregation group</u>	: SG18
<u>Emergency schedules (EmS)</u>	: F-C, S-U

Regulation: IATA	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
14.6 Additional information	
<u>Marine pollutant</u>	Yes.

Regulation: DOT Classification	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	Yes.
14.6 Additional information	
<u>Environmental hazards</u>	: Yes.

Regulation: TDG Class	
14.1 UN number	1005
14.2 UN proper shipping name	AMMONIA, ANHYDROUS
14.3 Transport hazard class(es)	2.3 
14.4 Packing group	
14.5 Environmental hazards	Yes.
14.6 Additional information	

Environmental hazards : Yes.

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

IMSBC : Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

Section 15. Regulatory information

United States

U.S. Federal regulations :

- United States - TSCA 12(b) - Chemical export notification:** None of the components are listed.
- United States - TSCA 4(a) - Final Test Rules:** Not listed
- United States - TSCA 4(e) - ITC Priority list:** Not listed
- United States - TSCA 4(a) - Proposed test rules:** Not listed
- United States - TSCA 4(f) - Priority risk review:** Not listed
- United States - TSCA 5(a)2 - Final significant new use rules:** Not listed
- United States - TSCA 5(a)2 - Proposed significant new use rules:** Not listed
- United States - TSCA 5(e) - Substances consent order:** Not listed
- United States - TSCA 6 - Final risk management:** Not listed
- United States - TSCA 6 - Proposed risk management:** Not listed
- United States - TSCA 8(a) - Comprehensive assessment report (CAIR):** Not listed
- United States - TSCA 8(a) - Chemical risk rules:** Not listed
- United States - TSCA 8(a) - Dioxin/Furane precursor:** Not listed
- United States - TSCA 8(a) - Chemical Data Reporting (CDR):** Not determined
- United States - TSCA 8(a) - Preliminary assessment report (PAIR):** Not listed
- United States - TSCA 8(c) - Significant adverse reaction (SAR):** Not listed
- United States - TSCA 8(d) - Health and safety studies:** Not listed
- United States - EPA Clean water act (CWA) section 307 - Priority pollutants:** Not listed
- United States - EPA Clean water act (CWA) section 311 - Hazardous substances:** Listed Ammonia
- United States - EPA Clean air act (CAA) section 112 - Accidental release prevention - Flammable substances:** Not listed

**United States - EPA Clean air act (CAA) section 112 -
Accidental release prevention - Toxic substances:**

Listed Ammonia

**United States - Department of commerce - Precursor
chemical:** Not listed

- Clean Air Act Section 112(b)
Hazardous Air Pollutants
(HAPs)** : Not listed
- Clean Air Act Section 602
Class I Substances** : Not listed
- Clean Air Act Section 602
Class II Substances** : Not listed
- DEA List I Chemicals
(Precursor Chemicals)** : Not listed
- DEA List II Chemicals
(Essential Chemicals)** : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302/304
Ammonia	99.5 - 100	Yes.	SARA 302 TPQ: 500 lb(s) SARA 304 RQ: 100 lb(s)

SARA 304 RQ : 100 lbs

SARA 311/312

Classification : Fire hazard
Sudden release of pressure
Immediate (acute) health hazard

SARA 313

		<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	:	Ammonia	7664-41-7	99.5 - 100
Supplier notification	:	Ammonia	7664-41-7	99.5 - 100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed:
Ammonia
- New York** : The following components are listed:
Ammonia
- New Jersey** : The following components are listed:
Ammonia
- Pennsylvania** : The following components are listed:
Ammonia

California Prop. 65

This product contains a chemical (or chemicals) known to the State of California to cause cancer and

birth defects or other reproductive harm.

International lists

- Philippines inventory (PICCS):** All components are listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC):** All components are listed or exempted.
- Korea inventory:** All components are listed or exempted.
- Japan inventory:** All components are listed or exempted.
- China inventory (IECSC):** All components are listed or exempted.
- Australia inventory (AICS):** All components are listed or exempted.
- Canada inventory (DSL and NDSL):** All components are listed or exempted.
- Malaysia Inventory (EHS Register):** All components are listed or exempted.
- United States inventory (TSCA 8b):** All components are listed or exempted.
- EC INVENTORY (EINECS/ELINCS):** All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	-	3
Flammability		1
Physical hazards		2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

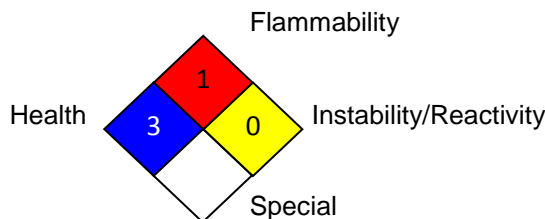
The customer is responsible for determining the PPE code for this material.

Chronic toxicity:

- : No data available.

* : Carcinogen, Target organs, Reproductive effects, Sensitizer to lungs

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Key to abbreviations

: ADN/ADNR = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 bw = Body weight
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 NOHSC - National Occupational Health and Safety Commission
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons
 UN = United Nations

References

: EU REACH IUCLID5 CSR.
 National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda Registry of Toxic Effects of Chemical Substances.
 IHS, 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada.

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|| Indicates information that has changed from previously issued version.

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