

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations Date of Issue: 05/26/2022

Version: 1.0

SECTION 1: IDENTIFICATION

1.1. **Product Identifier** Product Form: Substance Product Name: Ammonia Chemical Name: Ammonia, anhydrous CAS-No.: 7664-41-7 Formula: NH₃ Synonyms: Ammonia, liquefied **Intended Use of the Product** 1.2. Use of the Substance/Mixture: No use is specified 1.3. Name, Address, and Telephone of the Responsible Party

Company OCI Beaumont, LLC

5740 N. Twin City Hwy Nederland, Texas 77627 (409) 723-1947

1.4. **Emergency Telephone Number**

Emergency Number

: For Chemical Emergency Call CHEMTREC day or night Within USA and Canada: 1.800.424.9300 Mexico: 1.800.681.9531 Outside USA and Canada: 1.703.527.3887 (collect calls accepted)

SECTION 2: HAZARDS IDENTIFICATION

SECTION 2. HAZAND	SIDENTITICA	
2.1. Classification	of the Substan	ice or Mixture
GHS-US Classification	ı	
Flam. Gas 2	H221	
Press. Gas (Liq.)	H280	
Acute Tox. 3	H331	
(Inhalation:gas)		
Skin Corr. 1B	H314	
Eye Dam. 1	H318	
STOT SE 3	H335	
Aquatic Acute 1	H400	
Aquatic Chronic 2	H411	
Full text of hazard class	es and H-stateme	ents : see section 16
2.2. Label Elemen	ts	
GHS-US Labeling		
Hazard Pictograms (G	HS-US)	: GH504 GH505 GH505 GH506 GH507 GH509
Signal Word (GHS-US))	: Danger
Hazard Statements (G	iHS-US)	: H221 - Flammable gas. H280 - Contains gas under pressure; may explode if heated. H314 - Causes severe skin burns and eve damage.

- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H400 Very toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.
- : P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P260 Do not breathe gas, vapors, mist, or spray.

Precautionary Statements (GHS-US)

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, and eye protection.

P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a poison center or doctor.

P321 - Specific treatment (see section 4 on this SDS).

P363 - Wash contaminated clothing before reuse.

P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 - Eliminate all ignition sources if safe to do so.

P391 - Collect spillage.

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P410+P403 - Protect from sunlight. Store in a well-ventilated place.

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Contact with gas escaping the container can cause frostbite.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Synonyms	Product Identifier	%	GHS US classification
Ammonia	Ammonia, anhydrous / Free ammonia / Gaseous ammonia / AMMONIA / Non-ionic ammonia / Ammonia Solutions / ammonia	(CAS-No.) 7664-41-7	≥ 99	Flam. Gas 2, H221 Press. Gas (Comp.), H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: First, take proper precautions to ensure your own safety before attempting rescue (e.g. wear appropriate respiratory protective equipment, use the buddy system), then remove the exposed person to fresh air. Keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician. Start oxygen and/or artificial respiration if needed.

First-aid Measures After Skin Contact: Immediately remove contaminated clothing. For brief contact with a small amount: Rewarm with body heat or lukewarm water. Hot water will aggravate injury. Get immediate medical advice/attention. For extensive contact or a large amount: Immediately call a poison center/doctor and follow their advice. Specific treatment is urgent, incorrect first-aid practices will aggravate the injury. Protect affected area with a loose cover until proper medical treatment is received.

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

First-aid Measures After Eye Contact: Immediately rinse with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Injuries: May cause frostbite on contact with the liquid. May cause respiratory irritation. Causes severe skin burns and eye damage. Toxic if inhaled.

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. May be corrosive to the respiratory tract. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death.

Symptoms/Injuries After Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns. Causes severe irritation which will progress to chemical burns.

Symptoms/Injuries After Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage. Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand. **SECTION 5: FIRE-FIGHTING MEASURES**

5.1. Extinguishing Media

Suitable Extinguishing Media: Do not extinguish burning gas if flow cannot be shut off immediately. Extinguish secondary FIRES with appropriate materials.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Flammable gas. Ammonia concentrations in the range of 16-25% by volume in air can be ignited if heated to the auto-ignition temperature. Oil or other combustible materials increases the fire hazard.

Explosion Hazard: May form flammable/explosive vapor-air mixture. Container may explode in heat of fire.

Reactivity: May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction. Runoff water will be highly alkaline.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Do not allow ammonia vapors to accumulate in confined areas where ignition may occur.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Use self-contained breathing apparatus and chemically protective clothing.

Hazardous Combustion Products: Nitrogen oxides. Corrosive vapors.

Other Information: Use water spray to disperse vapors. Do not allow run-off from fire fighting to enter drains or water courses. **SECTION 6: ACCIDENTAL RELEASE MEASURES**

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Eliminate every possible source of ignition. Do not breathe gas. Do not get in eyes, on skin, or on clothing. **6.1.1.** For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE). Use recommended respiratory protection.

Emergency Procedures: Evacuate unnecessary personnel. Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection. Use self-contained breathing apparatus and chemically protective clothing.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Evacuate unnecessary personnel, isolate, and ventilate area. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Collect spillage.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Stop leak, if possible without risk. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. Ruptured cylinders may rocket. Do not pressurize, cut, or weld containers. May release corrosive vapors. Reacts with certain metals. Precautions for Safe Handling: Do not breathe gas. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not get in eyes, on skin, or on clothing. Handle empty containers with care because they may still present a hazard. Use only outdoors or in a well-ventilated area.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Store locked up/in a secure area. Store in original container or corrosive resistant and/or lined container.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Water. Metals.

7.3. Specific End Use(s)

No use is specified

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Ammonia (70	664-41-7)	
USA ACGIH	ACGIH OEL TWA [ppm]	25 ppm
USA ACGIH	ACGIH OEL STEL [ppm]	35 ppm
USA NIOSH	NIOSH REL (TWA)	18 mg/m ³
USA NIOSH	NIOSH REL TWA [ppm]	25 ppm
USA NIOSH	NIOSH REL (STEL)	27 mg/m ³
USA NIOSH	NIOSH REL STEL [ppm]	35 ppm
USA IDLH	IDLH [ppm]	300 ppm
USA OSHA	OSHA PEL (TWA) [1]	35 mg/m ³
USA OSHA	OSHA PEL (TWA) [2]	50 ppm

8.2. Exposure Controls

Appropriate Engineering Controls

: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Use explosion-proof equipment. Proper grounding procedures to avoid static electricity should be followed. Gas detectors should be used when flammable gases or vapors may be released. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Gas detectors should be used when toxic gases may be released.

Personal Protective Equipment

: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection. Face shield.



Materials for Protective Clothing

Hand Protection

- : Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing. Corrosion-proof clothing.
- : Wear protective gloves. If material is cold, wear thermally resistant protective gloves.

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday,	March 26, 2012 / Rules and Regulations
Eye and Face Protection	: Chemical safety goggles and face shield.
Skin and Body Protection	: Wear suitable protective clothing.
Respiratory Protection	: If exposure limits are exceeded or irritation is experienced, approved respiratory
	protection should be worn. In case of inadequate ventilation, oxygen deficient
	atmosphere, or where exposure levels are not known wear approved respiratory
	protection.
Thermal Hazard Protection	: Wear thermally resistant protective clothing.
Other Information	: When using, do not eat, drink or smoke.
SECTION 9: PHYSICAL AND CHEN	IICAL PROPERTIES
9.1. Information on Basic Physic	cal and Chemical Properties
Physical State	: Gas
Appearance	: Compressed liquefied gas
Odor	: Pungent/irritating
Odor Threshold	: 5 ppm
рН	: 11.7
Evaporation Rate	: No data available
Melting Point	: -77.7°C (-107.9°F)
Freezing Point	: -77.7°C (-107.9°F)
Boiling Point	: -33.4 °C (-28.12 °F)
Flash Point	: 11 °C (51.8 °F)
Auto-ignition Temperature	: 651 °C (1203.8 °F)
Decomposition Temperature	: No data available
Flammability (solid, gas)	: Flammable gas
Vapor Pressure	: 1822 mm Hg
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Specific Gravity	: 0.633 @ 4 °C (39 °F) (Water=1)
Density	: 620 kg/m ³ @ 16 °C (60.8 F)
Solubility	: Water: 34 % @ 20 °C (68 °F)
Partition Coefficient: N-Octanol/Wat	
Viscosity	: 0.266 cP @ -34 °C (-29 °F)
Explosive Properties	: Contains gas under pressure; may explode if heated.
Molecular Weight	: 17.03 g/mol
Upper Explosive Limit	: 25%
Lower Explosive Limit	: 16%
9.2. Other Information	
Gas Group	: Press. Gas (Liq.)
SECTION 10: STABILITY AND REA	CTIVITY

10.1. Reactivity

May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

10.2. Chemical Stability

Contains gas under pressure; may explode if heated.

10.3. Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

10.4. Conditions to Avoid

Direct sunlight, extremely high or low temperatures, open flames, sources of ignition and incompatible materials.

10.5. Incompatible Materials

Strong acids, strong bases, strong oxidizers.

10.6. Hazardous Decomposition Products

Not expected to decompose under ambient conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Toxic if inhaled.

Safety Data Sheet According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Ammonia (7664-41-7)		
ATE (Gases)	2,020.20 ppmV/4h	
Ammonia (7664-41-7)		
LD50 Oral Rat	350 mg/kg	
LC50 Inhalation Rat	5.1 mg/l (Exposure time: 1 h)	
LC50 Inhalation Rat	2000 ppm/4h (Exposure time: 4 h)	

Skin Corrosion/Irritation: Causes severe skin burns.

pH: 11.7

Serious Eye Damage/Irritation: Causes serious eye damage.

pH: 11.7

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Not classified **Specific Target Organ Toxicity (Single Exposure):** May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. May be corrosive to the respiratory tract. Inhalation of this material can cause serious health effects in small amounts, leading to unconsciousness and death.

Symptoms/Injuries After Skin Contact: Contact with gas/liquid escaping the container can cause frostbite and freeze burns. Causes severe irritation which will progress to chemical burns.

Symptoms/Injuries After Eye Contact: Contact with gas/liquid escaping the container can cause frostbite, freeze burns, and permanent eye damage. Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Not considered a potential route of exposure, but contact with gas/liquid escaping the container can cause freeze burns and frostbite. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

12.1. I oxicity		
Ecology - General	: Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.	
Ammonia (7664-41-7)		
LC50 Fish 1	0.083 mg/l	
EC50 - Crustacea [1]	25.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)	
LC50 Fish 2	0.26 – 4.6 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus)	
12.2. Persistence and Degradabilit	у	
Ammonia (7664-41-7)		
Persistence and Degradability May cause long-term adverse effects in the environment.		
12.3. Bioaccumulative Potential		
Ammonia (7664-41-7)		
Bioaccumulative Potential	Not established.	
12.4. Mobility in Soil		
No additional information available		
12.5. Other Adverse Effects		
Other Information : Avoid release to the environment.		
SECTION 13: DISPOSAL CONSIDERA	TIONS	

13.1. Waste Treatment Methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions. Handle empty containers with care because residual vapors are flammable. Empty gas cylinders should be returned to the vendor for recycling or refilling. Do not puncture or incinerate container.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with D	от
Proper Shipping Name	: AMMONIA, ANHYDROUS
Hazard Class	: 2.3
Identification Number	: UN1005
Label Codes	: 2.3, 8
Marine Pollutant	: Marine pollutant
ERG Number	: 125
14.2. In Accordance with IN	//DG
Proper Shipping Name	: AMMONIA, ANHYDROUS
Hazard Class	: 2
Division	: 2.3
Subsidiary Risk(s)	: 8
Identification Number	: UN1005
Label Codes	: 2.3, 8
EmS-No. (Fire)	: F-C
EmS-No. (Spillage)	: S-U
Marine Pollutant	: Marine pollutant
14.3. In Accordance with IA	TA
Proper Shipping Name	: AMMONIA, ANHYDROUS
Identification Number	: UN1005
Hazard Class	: 2
Division	: 2.3
Subsidiary Risk(s)	: 8
ERG Code (IATA)	: 2CP



Ammonia (7664-41-7)	
SARA Section 311/312 Hazard Classes	Physical hazard - Flammable (gases, aerosols, liquids, or solids) Physical hazard - Gas under pressure Health hazard - Specific target organ toxicity (single or repeated exposure)
	Health hazard - Serious eye damage or eye irritation Health hazard - Skin corrosion or Irritation Health hazard - Acute toxicity (any route of exposure)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on the United States SARA Section 302	
Subject to reporting requirements of United States SARA	Section 313
CERCLA RQ	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	500 lb
SARA Section 313 - Emission Reporting	1 % (includes anhydrous Ammonia and aqueous Ammonia from water
	dissociable Ammonium salts and other sources, 10% of total aqueous
	Ammonia is reportable under this listing)

15.2. US State Regulations

Ammonia (7664-41-7)

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

U.S. - Massachusetts - Right To Know List

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Safety Data Sheet According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

CECTION 4C OTHER INFORMATION	NCLUDING DATE OF PREPARATION OR LAST REVISION
SECTION 16. OTHER INFORMATION	
SECTION 10. OTTIEN INTONIATION, I	

Date of Preparation or Latest Revision Other Information

: 05/26/2022

: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases:

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Flam. Gas 2	Flammable gases Category 2
Press. Gas (Comp.)	Gases under pressure Compressed gas
Press. Gas (Liq.)	Gases under pressure Liquefied gas
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3,
	Respiratory tract irritation
H221	Flammable gas
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)