

## Material Safety Data Sheet

### PRODUCT IDENTIFIER & COMPANY IDENTIFICATION

Product name :	Anhydrous Ammonia
HBCC SDS number :	CA10000
Synonym :	Ammonia, NH <sub>3</sub>
Supplier :	SURYA CHEM Plot No: 57-58, Opp. Old Arvind Mills, Nr. Olympic Laminates, Khatraj, Kalol, Gandhinagar - 382721
Emergency Contact No :	9737117347
Website:	<a href="http://www.suryachemindia.com">www.suryachemindia.com</a>

### HAZARD IDENTIFICATION

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

Pictogram(s) :



Hazard Statements :

Flammable gas.  
May form explosive mixtures with air.  
Contains gas under pressure; may explode if heated.  
May displace oxygen and cause rapid suffocation.  
Harmful if inhaled.  
Causes severe skin burns and eye damage.  
Very toxic to aquatic life.

Precautionary statements :

Read and follow all Safety Data Sheets (SDS'S) before use. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Approach suspected leak area with caution.

**Prevention :**

Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Hazards not otherwise classified :**

In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

## COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient name	%	CAS number
Ammonia; Anhydrous Ammonia	100	7664-41-7

## FIRST AID MEASURES

Description of necessary first aid measures

**Eye contact :**

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention immediately. Call medical doctor or poison control center immediately. Chemical burns must be treated promptly by a physician.

**Inhalation :**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately. Call medical doctor or poison control center immediately. 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.

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**Skin contact :**

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Get medical attention immediately. Call medical doctor or poison control center immediately. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

**Ingestion :**

As this product is a gas, refer to the inhalation section.

**Eye contact :**

Causes serious eye damage.

**Inhalation :**

Harmful if inhaled.

**Skin contact :**

Causes severe burns.

**Frostbite :**

Try to warm up the frozen tissues and seek medical attention.

**Ingestion:**

Adverse symptoms may include the following:, stomach pains

## FIRE-FIGHTING MEASURES

**Suitable extinguishing media :**

Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media :**

None known.

**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.

## ACCIDENTAL RELEASE MEASURES

### For non-emergency personnel :

Evacuate surrounding areas.

Keep unnecessary and unprotected personnel from entering. 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.

### Environmental precautions :

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. 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.

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

## HANDLING AND STORAGE

### Protective measures :

Do not get in eyes or on skin or clothing. Do not breathe gas. Avoid release to the environment. 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.

### 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.

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**Conditions for safe storage,  
including any incompatibilities :**

Store in accordance with local regulations. Store in a segregated and approved area.

## EXPOSURE CONTROLS/PERSONAL PROTECTION

### Occupational Exposure Limits

**Ingredient name**

**Exposure limits**

**ammonia :**

California PEL for Chemical Contaminants  
(Table AC-1) (United States).

PEL: 25 ppm 8 hours.

STEL: 35 ppm 15 minutes.

ACGIH TLV (United States, 3/2017).

TWA: 25 ppm 8 hours.

TWA: 17 mg/m<sup>3</sup> 8 hours.

STEL: 35 ppm 15 minutes.

STEL: 24 mg/m<sup>3</sup> 15 minutes.

OSHA PEL 1989 (United States, 3/1989).

STEL: 35 ppm 15 minutes.

STEL: 27 mg/m<sup>3</sup> 15 minutes.

NIOSH REL (United States, 10/2016).

TWA: 25 ppm 10 hours.

TWA: 18 mg/m<sup>3</sup> 10 hours.

STEL: 35 ppm 15 minutes.

STEL: 27 mg/m<sup>3</sup> 15 minutes.

OSHA PEL (United States, 6/2016).

TWA: 50 ppm 8 hours.

TWA: 35 mg/m<sup>3</sup> 8 hours.

**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.

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**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 :**

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**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 contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

**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.

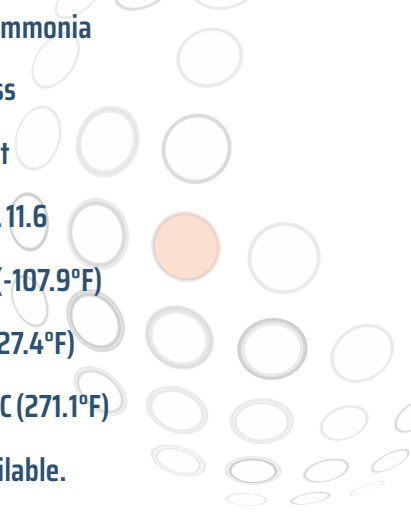
**Body protection :**

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

**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 :** 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.

## PHYSICAL AND CHEMICAL PROPERTIES



<b>Physical state :</b>	Liquid ammonia
<b>Color :</b>	Colorless
<b>Odor :</b>	Pungent
<b>pH :</b>	Approx. 11.6
<b>Melting point :</b>	-77.7°C (-107.9°F)
<b>Boiling point :</b>	-33°C (-27.4°F)
<b>Critical temperature :</b>	132.85°C (271.1°F)
<b>Flash point :</b>	Not available.
<b>LEL :</b>	16%
<b>UEL :</b>	25%
<b>Vapor pressure :</b>	114.1 (psig)
<b>Vapor density :</b>	0.59 (Air = 1)
<b>Solubility :</b>	Soluble in water. Soluble in alcohol and ether.
<b>Auto-ignition temperature :</b>	651°C (1203.8°F)

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## STABILITY AND REACTIVITY

<b>Reactivity :</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability :</b>	The product is stable.
<b>Possibility of hazardous reactions :</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid :</b>	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.
<b>Incompatible materials :</b>	Oxidizers and Yellow Metals (brass & copper)
<b>Hazardous decomposition products :</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Hazardous polymerization :</b>	Under normal conditions of storage and use, hazardous polymerization will not occur.

## TOXICOLOGICAL INFORMATION

Product/ingredient name	Result	Species	Dose	Exposure
Ammonia	LC 50 Inhalation Gas.	Rat	7338 ppm	1 hours
	<b>Irritation/Corrosion</b> Not available.		<b>Carcinogenicity</b> Not available.	
	<b>Sensitization</b> Not available.		<b>Reproductive toxicity</b> Not available.	
	<b>Mutagenicity</b> Not available.		<b>Teratogenicity</b> Not available.	



**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Potential acute health effects**

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled.

Skin contact : Causes severe burns.

Ingestion : As this product is a gas, refer to the inhalation section.

## ECOLOGICAL INFORMATION

Product/ingredient name	Result	Species	Exposure
Ammonia	Acute EC50 29.2 mg/l Marine water	Algae - Ulva fasciata – Zoea	96 hours
	Acute LC50 2080 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 0.53 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 300 µg/l Fresh water	Fish - Hypophthalmichthys nobilis	96 hours
	Chronic NOEC 0.204 mg/l Marine water	Fish - Dicentrarchus labrax	62 days

**Persistence and degradability**

Not available.

**Bioaccumulative potential**

Not available.

## DISPOSAL CONSIDERATIONS

**Disposal methods :** 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 Airgas-owned pressure vessels should be returned to Airgas. 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.






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## TRANSPORT INFORMATION

	DOT	TDG	Mexico	IMDG	IATA
<b>UN number</b>	UN1005	UN1005	UN1005	UN1005	UN1005
<b>UN proper shipping name</b>	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS; OR ANHYDROUS AMMONIA	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS
<b>Transport hazard class(es)</b>	2.2 	2.3 (8) 	2.3 (8) 	2.3 (8) 	2.3 (8) 
<b>Packing group</b>	-	-	-	-	-
<b>Environmental hazards</b>	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

## REGULATORY INFORMATION

DATA NOT AVAILABLE

## OTHER INFORMATION

Hazardous Material Information System

Health	3
Flammability	1
Physical hazards	2

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**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.

**Disclaimer:**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist



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