

fact sheet



anhydrous ammonia

What is Anhydrous Ammonia?

Anhydrous ammonia is a liquefied gas, which is made by putting ammonia gas under pressure and chilling it to below -33°C. The term “anhydrous” means “without water”. This product has a sharp odor and is both naturally occurring in the environment and industrially-manufactured.

How is Anhydrous Ammonia used?

Anhydrous ammonia is one of Agrium's key fertilizer products. It is used as the nitrogen source for fertilizer, and also in the manufacture of some specialty fertilizers. It is used by other industries for making refrigerants and household cleaning products.

What are the potential hazards?

Anhydrous ammonia is transported as a liquid at temperatures below -33°C. In the event of a large spill it can form a toxic vapor cloud that is heavier than air until its temperature increases.

Anhydrous ammonia is corrosive to copper, silver, aluminum, zinc, and alloys. It reacts with body moisture, so it may burn body tissue - skin, eyes, mouth, throat, lungs, and stomach - on contact, if inhaled or swallowed.

Ammonia is generally tolerable at concentrations up to 25 parts-per-million (ppm), although the smell is unpleasant and sharp. Above this concentration, irritation of the eyes, nose, and throat may begin. Above 400 ppm, skin burns and coughing occur immediately. The U.S. National Institute for Occupational Safety and Health (NIOSH) has established 300 ppm as the concentration that is immediately dangerous to life and health (IDLH); at this concentration a person's ability to escape is impaired.

At concentrations between 1000 ppm and 2500 ppm, increasing chest tightness and severe eye, skin, and lung irritation will result. Immediate suffocation may result at concentrations above 2500 ppm. Effects may be more pronounced at lower concentrations in children, the elderly, and persons with impaired lung function.

Is Anhydrous Ammonia flammable or explosive?

Anhydrous ammonia is a slightly flammable liquid. It is not explosive.

What are the Emergency Response procedures?

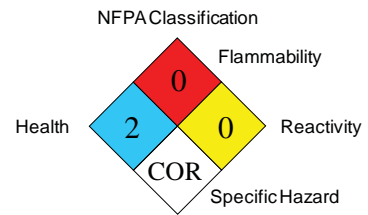
In the event of a spill or accidental discharge of anhydrous ammonia, the fire department will assess the scene. Possible actions could include, but are not limited to, evacuating the area or implementing Shelter-in-Place procedures (see the section titled “If there has been a release of toxic vapors”). The emergency responders will attempt to stop the leak of anhydrous ammonia. When anhydrous ammonia is released it maintains its temperature below -33°C (auto-refrigeration) for some time, depending on factors such as outdoor temperature. The product stays in its liquid form, with only the outer layer closest to the air vaporizing at any given time. Emergency responders will not mix water used for firefighting directly with the anhydrous ammonia, as this could result in warming of the product, causing the liquid to turn into a toxic vapor cloud. However, they may use a water spray downwind of the leak source to absorb ammonia gas and dilute the vapor cloud, ensuring the water that is sprayed does not come into contact with the product. The spilled anhydrous ammonia would be recovered using earth moving equipment and sent to a Class1 landfill for appropriate disposal.

What should you do if you are exposed to Anhydrous Ammonia?

For eye contact:

- Check for and remove contact lenses. **IMMEDIATELY** flush eyes with running water for at least 30 minutes, keeping the eyelids open. Use warm water if available. Obtain immediate medical attention.

fact sheet



Where can I get more information?

For more information on this product, or other Agrium products, please call Agrium directly at (403) 225-7000.

Information can also be found at the following websites:

- **Agency for Toxic Substances and Disease Registry (ATSDR):** www.atsdr.cdc.gov
- **Occupational Health and Safety Administration (OSHA):** www.osha.gov
- **Canadian Centre for Occupational Health and Safety:** www.ccohs.ca

Agrium

13131 Lake Fraser Drive S.E.
Calgary, Alberta
T2Y 7E8

Telephone:
(403) 225-7000

www.agrium.com

For skin contact:

- Flush exposed skin with large amounts of water for at least 30 minutes. Use warm water if available. Remove contaminated clothing as quickly as possible. If irritation persists, seek medical attention. Dispose of contaminated clothing in a manner that limits further exposure.

For minor inhalation:

- Using appropriate respiratory protection remove the affected individual from the area of overexposure. Allow the person to rest in a well ventilated area. If irritation persists, obtain medical attention.

For severe inhalation:

- Use proper respiratory protection to evacuate affected individuals to a safe area as soon as possible. Loosen tight clothing around the person's neck and waist. If breathing is difficult administer oxygen. If the person is not breathing, perform artificial respiration and obtain immediate medical attention.

For ingestion:

- If the victim is not breathing, begin artificial respiration and continue until the victim is breathing. Do not induce vomiting. Careful removal of the ammonia from the stomach by medical personnel is required. Call a physician or poison control center and seek immediate medical attention. If tolerated and if victim is conscious, give no more than 1 cup of milk or water to rinse the mouth and throat and dilute the stomach contents. No more than 8 ounces (1 cup) in adults and 4 ounces (1/2 cup) in children are recommended to minimize the risk of vomiting.

What should you do in the event of a spill?

Follow any special instructions given over the radio, T.V., or by someone in authority.

If there is a fire or an explosion, stay away from the site. Follow standard, marked emergency routes or directions from police to travel to your destination.

If there has been a release of toxic vapors:

- Go indoors immediately and tightly close all doors, windows, and openings.
- Turn on your radio or television to a local news station. (*Be prepared to wait a few minutes for news.*)
- Follow any special instructions given over the radio or television, or by someone in authority.
- Shut off all air conditioning units, fans, ventilation systems and clothes dryers. In winter, turn your furnace to its lowest setting and close fireplace dampers.
- Evacuate only if advised to do so by local authorities.

You may wish to:

- Place wet towels at the base of doors or breathe through damp towels.
- Bring in pets if they are nearby and easily found.

Unless you are told to do so by authorities:

- **DO NOT** evacuate or travel.
- **DO NOT** bring home children from school, or other family members from work.
- **DO NOT** call 911 or any other authority for information. Keep your telephone line free.

When you have been advised of an **ALL CLEAR**, open your house to let it air out. ■