



## AMMONIA

### Agent Information:

Used for fertilizers, refrigerants, chemical reactions, explosives and chemical warfare agent; NH<sub>3</sub>. Synonyms include ammonia gas, anhydrous ammonia, and liquid ammonia, aqueous ammonia, ammonia solution, and ammonium hydroxide; dissolves readily in water to form ammonium hydroxide. Ammonia's pungent odor and irritating properties usually provide adequate warning of its presence; however, olfactory fatigue can occur. Inhalation can result in fatalities. Ammonia is toxicologically, part of a group of compounds known as highly water-soluble **irritant gases**.

### Signs and Symptoms:

Signs and symptoms vary depending on the route of exposure and level of the exposure.

- Highly irritating to eyes and respiratory tract; swelling and narrowing of throat and bronchi, coughing, and an accumulation of fluid in the lungs.
- Rapid onset of a burning sensation in the eyes, nose, and throat, accompanied by lacrimation, rhinorrhea, and coughing; upper airway swelling and pulmonary edema may lead to airway obstruction.
- Prolonged skin contact can cause corrosive injury.

### Route of Exposure:

Inhalation, dermal, ocular, and ingestion are all possible.

- Inhalation of ammonia may cause nasopharyngeal and tracheal burns, bronchiolar and alveolar edema, and airway destruction resulting in respiratory distress or failure.
- Rapid eye and nose irritation from airborne concentrations (100 ppm); higher concentrations may cause severe eye injury.
- Gas or solution can cause serious burns; liquid can cause frostbite.
- Ingestion causes corrosive damage to the mouth, throat, and stomach.

### Protective Measures:

Utilize appropriate Level PPE as identified by the Environmental Protection Agency and Hazmat protocols.

Persons exposed only to ammonia gas do not pose significant risk of secondary contamination to personnel outside the Hot Zone. Persons whose clothing or skin is contaminated with liquid ammonium hydroxide should have their clothing and jewelry removed immediately. Contaminated skin should be washed with a mild soap and large quantities of water for at least 15 minutes. Providers can be secondarily contaminated and should wear appropriate chemical protective clothing and gloves.

### Treatment:

There is no antidote for ammonia poisoning. Treatment is supportive care. These include administering humidified oxygen and bronchodilators and managing airway; treating skin and eyes with copious irrigation; and diluting ingested ammonia with milk or water.

### Reporting:

Any suspect cases should be reported immediately to the Division of Public Health, Epidemiology Branch: 1-888-295-5156 (24/7 coverage). For additional information, view the CDC website for Emergency Preparedness and Response at [www.bt.cdc.gov](http://www.bt.cdc.gov).

**24/7 Emergency Contact Number: 1-888-295-5156**

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