

## Emergency Response

Personnel responding to the accidental release of a hazardous material must be trained in accordance with HAZWOPER regulation 29 CFR 1910.120. The following are suggested steps to be followed in the event of an accidental release of aqua ammonia:

1. Report the release immediately to the National Response Center (1,000 lbs. Or more in any 24-hour period). Report to state and local authorities as required.
2. Alert all on-site personnel and shut down all aqua ammonia operations.
3. Account for all on-site personnel.
4. Administer first aid to injured personnel.
5. Evaluate the emergency and assess the possible need for an evacuation.
6. Contact off-site emergency responders as necessary.
7. Coordinate with off-site responders.
8. Direct site activities.
9. Identify the source of the aqua ammonia leak.
10. Isolate and control the source of leak.
11. Record site events (ongoing).
12. Monitor the leak (ongoing).

The application of a water fog to absorb ammonia vapors immediately downwind of a spill is an effective mitigation tool. Determine the potential flow pattern of the ammonia-water solution beforehand. If necessary, create proper pathways for retaining the dilute ammonia-water solution.

## Environmental

Properly designed containment systems must be used for confining aqua ammonia (ammonium hydroxide) in the event of a large spill. Spills should not be washed into ground water. Release into sewers is not permitted without appropriate approvals and dilution. For information, contact your local, state and federal regulatory agencies. Secure regulatory and/or sanitary district approval prior to disposal into a sewer. For hazardous waste regulations, contact the federal RCRA Hotline at (800) 424-9346.

Aqua ammonia in concentrations as low as 5 ppm can be harmful to aquatic life. Aqua ammonia is a regulated material and reporting of any release may be required.

## Safety

Refer to the Material Safety Data Sheet for Airgas aqua ammonia for more detailed safety information.

### Primary Hazards

Aqua ammonia is an alkaline material and reacts corrosively with human tissue in varying degrees depending on concentration and the time duration of exposure. Ammonia vapors from aqua ammonia can be suffocating and irritating to mucous membranes and lung tissue. Skin contact can cause severe irritation and burns. Eye contact with aqua ammonia may be severely irritating; ammonia vapor contact with eyes may be mildly irritating. Ingestion can cause vomiting, nausea and corrosive burns to the esophagus and stomach. Ammonia is not listed as a carcinogen by IARC, NPT or OSHA.

The easily recognized odor of aqua ammonia provides adequate warning of its presence.

Aqua ammonia is not flammable. However, ammonia vapors present in aqua ammonia storage and handling equipment can ignite in the presence of a flame or spark at about 1200°F. The flammability range of ammonia vapor is approximately 16-25% of ammonia in air by volume. The NFPA hazard designation for anhydrous ammonia is 3-1-0 (Health =3; Flammability = 1; Reactivity =1).

Before welding or cutting, aqua ammonia tanks and/or piping must be completely purged of all ammonia. Purge until no odor can be detected and continue the purging during the welding or cutting maintenance procedure.

### Other Hazards

Aqua ammonia may react with halogens such as bromine and chlorine, with silver or with hypochlorites to form explosive and/or toxic compounds.

Ammonia vapor begins to dissociate into nitrogen and highly flammable hydrogen at about 840°F if a suitable catalyst is present. Iron pipe is one such catalyst.

Aqua ammonia will react with many organic and inorganic acids to form salts. These reactions are usually exothermic, i.e., heat is generated.