Brieser CONSTRUCTION

Toolbox Talk

Ammonia Awareness – November 4, 2025

Ammonia (NH3) is an extremely hazardous chemical that is widely used in many industries. Ammonia can be explosive, especially in an enclosed space or when other flammable chemicals are present. Ammonia will react dangerously with some chemicals – most notably, chlorine bleach.
Ammonia can be in liquid or gas form. Ammonia is colorless and has a strong pungent odor similar to your household cleaning ammonia. It is a common refrigerant in many industries.
Anhydrous ammonia gas is lighter than air and will rise, so that generally it dissipates and does not settle in low-lying areas. However, in the presence of moisture (such as high relative humidity), the liquefied anhydrous ammonia gas forms vapors that are heavier than air. These vapors may spread along the ground or into low-lying areas with poor airflow where people may become exposed. Some examples may include, but not limited to:

- working on/near industrial refrigeration machinery rooms, equipment and/or piping
- working in petroleum refineries
- working with/near agricultural fertilizer
- working in industrial process facilities

Anhydrous Ammonia can cause harm if inhaled and/or if it comes into contact with the eyes or skin. Ammonia interacts immediately upon contact with available moisture in the skin, eyes, oral cavity, respiratory tract, and particularly mucous surfaces to form the very caustic ammonium hydroxide.
Exposure of the eyes to ammonia may cause burning, tearing, temporary blindness and severe eye damage. Exposure of the skin to ammonia may cause severe burns and blistering. Exposure of the respiratory tract (mouth, nose and throat) to ammonia may cause runny nose, coughing, chest pain, severe breathing difficulties, severe burns and death.

RULE OF EXPOSURE:

- **5 PPM** – You can *smell* it
- **50 PPM** – It can *harm* you – Long Term Exposure
- **300 PPM** – Immediate *Danger to Life & Health*
- **5,000 PPM** – It can *kill* you

What to do if you are exposed:

- **Use an air monitor that detects ammonia in your work area.** You may become desensitized to ammonia and not realize how strong it really is. When the air monitor alarms, leave the area immediately. The air monitor must have an ammonia sensor in it to be able to detect ammonia.
- **Wear personal protective equipment.** Employees will be provided with and required to use impervious gloves, face shields or full face respirators and other appropriate impervious protective clothing necessary to prevent any possibility of skin contact. Liquid ammonia can burn your eyes. Know where the emergency eyewash station is located in your work area and how to use it.
- **Take hot work permitting precautions** whenever hot work will be performed in areas where ammonia is present. If piping, vessels, or containers that have held ammonia will be welded, soldered, drilled, or cut, purge all ammonia first.
- **Use proper ventilation.** Never work with ammonia in an unventilated area. Always ensure that you have adequate ventilation, and make sure that ventilation is non-sparking or explosion proof.
- **Store ammonia separately** from incompatible chemicals, away from heat and ignition sources.
- **Know what to do in case of a spill or leak.** Employees should be aware of customers' contingency plans and provisions. Employees must be informed where ammonia is used in the host facility and aware of additional plant safety rules. Report the spill or leak so it can be appropriately controlled.

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