

The Supervisor's Guide To

OSHA
REGULATIONStoday's
topic:**Ammonia
Refrigeration****SAFETY MEETING SCRIPT****Ammonia Refrigeration
Systems Require Safety**

“Ammonia is considered a high health hazard because it is corrosive to the skin, eyes and lungs. Exposure to 300 parts per million (ppm) is considered immediately dangerous to life and health. Ammonia is also flammable at concentrations of approximately 15 percent to 28 percent by volume in air. When mixed with lubricating oils, its flammable concentration range is increased. It can explode if it is released in an enclosed space with a source of ignition present, or if a vessel containing anhydrous ammonia is exposed to fire. Fortunately, ammonia has a low odor threshold, meaning it is easy to smell, so most people will get away from ammonia at much lower concentrations.

Ammonia is a colorless gas. In this form, it is also known as ammonia gas or anhydrous (“without water”) ammonia. Anhydrous ammonia is widely used as a refrigerant in many industrial facilities, including: meat, poultry and fish processing facilities; dairy and ice cream plants; wineries and breweries; fruit juice, vegetable juice and soft drink processing facilities; cold storage warehouses; other food processing facilities; and petrochemical facilities.

If you work regularly with anhydrous ammonia and are subject to overexposure either to the liquid or the vapor, we will provide you with proper safety equipment and we expect you to use it. This equipment includes:

✓ **Safety Goggles** — It is preferable that the goggles be gas tight; however, unventilated goggles tend to steam up, especially in hot and cold weather. Ventilated, splash-proof goggles are more comfortable and will provide adequate protection in most instances. In addition, where splashing may occur, full-face shields should be worn to protect the face.

✓ **Impervious Clothes** — Wear gloves that are impervious to ammonia. Where there is a likelihood of a spill, or during cleanup operations, wear both boots and shoe covers and slickers or jackets and pants made of ammonia-impervious materials. Wear gauntlets tucked inside the sleeves and trouser legs over

the boots. If impervious clothing is not available, wear cotton, which is the preferred fabric for work clothing because it is more alkali resistant than wool and is more comfortable than all-synthetic fibers. Clothes, especially gloves, should also be insulated to prevent freezing of the skin.

✓ **Gas Masks** — The term “gas mask” normally applies to respiratory equipment consisting of a negative-pressure full facepiece with a chest or back mounted canister. This is the respiratory equipment most familiar to ammonia workers.

Ammonia is delivered by an outside source, and then pumps, compressors or differential pressure is used to transfer the ammonia to our storage vessels (or other portions of the system). Release of ammonia can occur as a result of improper loading and unloading operations. Let's talk about some preventive measures:

✓ Wear appropriate personal protective equipment while connecting, disconnecting and venting the transfer hose.

✓ Never leave the charging operation unattended.

✓ Make sure you have been thoroughly trained in the loading process.

✓ Do not overfill the vessel during loading.

✓ Check the level measurement device on the storage tank to ensure adequate storage space to receive the ammonia before starting unloading operations.

✓ Properly connect and disconnect hoses.

✓ Properly empty and vent hoses and pressure relief valves before disconnecting.

✓ Do not stand in line with ammonia discharge while venting pressure relief devices and hoses.

✓ Ensure proper handling, stowing and care of hoses.

✓ Disconnect and secure both ends of the hoses before moving the tank truck.

✓ When loading from cylinders:

- Properly connect and disconnect lines.
- Properly empty and vent lines before disconnecting.
- Properly secure cylinders.

Thanks for your attention.

Have a safe day.”