

United Food and Commercial Workers International Union

Ammonia

Ammonia is a colorless gas with a strong, irritating smell. It is widely used as a refrigerant in meatpacking, poultry, and other food processing plants.

Hazards of Ammonia

Ammonia leaks can be very dangerous. These leaks in the refrigeration pipes carrying ammonia to the coolers can endanger all workers in your plant; therefore, it is important to make sure you are protected when one occurs!

Ammonia is extremely irritating, and may severely burn your skin and eyes upon contact. During a leak, a cloud of ammonia gas causes burning and swelling of the air passages of the nose, throat and lungs. Workers exposed to very serious leaks may survive the accident, but may die later from pulmonary edema, a buildup of fluid in the lungs caused by the damaging effect of the gas. Workers may suffer permanent lung and eye problems as a result of exposure to high levels of ammonia.

Nausea and watering eyes from ammonia fumes pose an additional safety hazard to workers who must work with sharp knives and precision cutting equipment.

Not much is known about the long-term effects of ammonia. Frequent exposure to small amounts of other irritating gases can lead to bronchitis, persistent cough, and excess mucus production. It may also decrease your body's ability to get rid of foreign substances, like dusts, from your airways. Chronic (long-term) exposure to ammonia may, therefore, harm you by itself or in combination with other occupational hazards and infectious diseases.

Legal Standards

The OSHA standard for ammonia 50 parts per million (ppm) over an 8 hour day. This means that a worker's exposure cannot exceed an average of 50 ppm over their 8 hour shift.

Most people can smell ammonia when it reaches a concentration of 20 to 30 ppm. If you frequently smell ammonia in your workplace, you may be exposed to more than the legal limit. But do not depend on your nose to tell you your workplace is safe. Ammonia may dull your sense of smell so that after a few minutes you cease to notice it. Several manufacturers of safety equipment sell testing devices for detecting ammonia and other chemicals.

NOTE: The OSHA standard of 35 ppm (as a 15 minute Short Term Exposure Limit (STEL)) was recently overturned by a court decision which found fault with the method OSHA used to publish the standard. This 35 ppm STEL is a much safer level than the 50 ppm currently in force because it would have limited a workers exposure to ammonia to 35 ppm for any 15 minute period. This level offers better protection to workers in poultry, food manufacturing, and meat plants where ammonia refrigeration line leaks often occur. We anticipate that OSHA will reissue this more protective standard shortly, and we will issue an advisory when this takes place.

Controlling the Hazards

Ammonia can be used safely, but only if the proper precautions are taken. All ammonia areas should be well-ventilated and posted with warning signs. Emergency exits should be well-marked and easy to get to. All ammonia tanks, lines, valves, and cylinders should be labeled, inspected frequently for leaks, maintained in a safe condition, and protected from trucks, forklifts, and other moving machinery.

You should never rely on respirators for day-to-day protection, but they should be available for emergencies. Keep them close to the work area -- they are useless in the plant manager's office. Only NIOSH approved full-facemask respirators should be used. Never enter a confined space which might contain ammonia without an air-line respirator, a safety line, and a back-up worker with the same equipment.

Management should make protective clothing, face shields, and goggles available to employees who work on ammonia lines. Never wear contact lenses near ammonia -- they can trap the ammonia against your eyes.

Workers exposed to ammonia should have yearly medical exams by doctors of their own choosing--not by the company doctor. Management should pay for the exams. Workers with lung, heart, or eye problems should be transferred to areas free from ammonia without loss of pay or other rights.

Management should keep records of ammonia use, accidents involving ammonia, and maintenance of ammonia equipment. The records should be available to workers. All workers in ammonia areas should receive training in safe work practices, including drills for escape in case of accidents. Workers trained in first aid should always be on hand.

In Case of an Ammonia Leak

When a release of ammonia is detected, air monitoring should be conducted using a direct reading device. If employees are not evacuated, air monitoring should be conducted during the entire release of ammonia. Initially, readings should be taken every five minutes. If an air monitoring reading, taken by direct reading method, detects ammonia at or above 25 ppm, the employer should evacuate the employees from the affected area. Employers should not wait for the ammonia to become unbearable.

In case of emergency or a major leak, or if employees complain of health effects, call the fire department. The employer should not wait for air monitoring, but should immediately evacuate employees from the area. Employees not fully protected with appropriate personal protection equipment should not re-enter the area until air-monitoring indicates the ammonia level has fallen below 25 ppm and a second reading indicates that the level is falling.

The "Emergency Response Standard" issued by OSHA contains special protections for those-workers required to assist in dealing with a leak. See the UFCW fact sheet, "Protection from Ammonia Leaks: The Emergency Response Standard," for more information.

NOTE: Many companies have adopted a short-term level of 25 ppm as an evacuation trigger, though it is lower than the 50 ppm OSHA standard. This is a precautionary measure to prevent levels from exceeding the OSHA standard.

In Case of Emergency

If any workers breathed enough gas to knock them out or cause heavy coughing or choking, call a doctor. They should be hospitalized overnight for observation, even if they feel all right.

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