

## Ammonia Safety in Enclosed Structures

**Objective:** Ensure the safety of all Incident personnel.

**Background:**

- Ammonia is produced naturally from decomposition of organic matter, including plants, animals and animal wastes and can become concentrated in enclosed structures.
- This guidance is for ammonia produced from these natural sources, NOT from compressed gas cylinders or other sources which may produce very high air concentrations.

**Signs of Exposure to ammonia:**

- Gas and vapor inhalation
  - Causes immediate burning of the nose, throat and respiratory tract.
  - Low concentrations can cause coughing and nose and throat irritation.
  - High concentration can cause airway destruction resulting in respiratory distress or failure.
- Strong odor provides adequate early warning of its presence, but prolonged exposure can be hard to detect due to olfactory fatigue and adaptation
- Skin and eye irritation

**Exposure guidelines (NIOSH):**

Long term exposure (8 hours)	25 ppm
Short term exposure (15 minutes)	35 ppm
Short term exposure (5 minutes)	50 ppm

**How to reduce ammonia exposure:**

- Increase ventilation when possible
- Reduce the amount of time spent in area where levels of ammonia are high
- Wear proper PPE (personal protective equipment)
  - Gloves
  - Half face with goggles or full face respirator
  - Half or full face respirator with at least a particulate/ ammonia cartridge (green) or a multigas cartridge
  - Cloth coveralls or disposable coveralls (Tyvek)
- If possible, measure levels of ammonia in work area before entering, or
- If in doubt, wear full-face respirator with particulate/ ammonia cartridges or a multigas cartridge (cartridges must be replaced at least daily)
- Know recommended exposure times based on the ammonia levels in work area

**If exposed:**

- Seek fresh air
- Flush irritated skin or eyes with water
- If needed, seek immediate medical attention
- Contact your supervisor or the Safety Officer if irritation of skin, nose, throat or respiratory tract is persistent