

PRACTICE SAFETY WHEN HANDLING ANHYDROUS AMMONIA – NH₃



It's No Secret - NH₃ is Hazardous



Anhydrous means “without water”. Because NH₃ contains little or no water it aggressively seeks out moisture, be it from the soil or your body. Exposure to NH₃ can result in severe freeze burns to skin, eyes, throat, sinuses, and lungs.

← Burn caused by NH₃

NH₃ Safety Practices

Personal protective equipment

- Wear NH₃-rated goggles and gloves (cuffed), and be fully clothed – long sleeve shirt and pants (no shorts).
- Never wear contact lenses.



Emergency water supply

- Each nurse tank must contain at least a 5-gallon emergency water supply.
- During freezing weather have an extra 5-gallon emergency water supply in the tractor cab.
- An accessible personal eyewash bottle is recommended.
- Have an emergency water supply whenever performing equipment maintenance.
- Keep emergency water supplies clean and accessible at ALL times.

Handling

- NEVER assume NH₃ lines are empty, including hoses connected to cold flow/heat transfer units or withdrawal hose.
- Stand upwind when connecting, disconnecting, bleeding lines, or transferring product.
- Handle valves by the body, not by the wheel or latch.
- Close, bleed, disconnect, and secure valves and transfer line when leaving equipment unattended.
- Park equipment downwind from dwellings, people, and livestock.

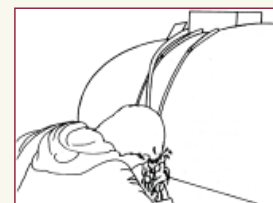
Transportation

- Adhere to speed limits:
 - 30 mph** towing full nurse tank
 - 35 mph** towing up to two empty nurse tanks
- Display a slow moving vehicle (SMV) emblem visible from the rear of towed assembly.
- Use two independent safety chains of suitable rating and a hitch pin with retainer clip.



IF EXPOSED

- ✓ IMMEDIATELY flood/flush exposed areas with water.
- ✓ Flood/flush exposed area for at least 15-20 mins.



- ✓ Seek medical attention as soon as possible.
- ✓ Tell medical staff that injury was caused by NH₃ exposure.
- ✓ Do not apply oils or ointments, this only worsens injury.

Maintenance of Selective Equipment Components

Hoses

- Immediately replace hosing if bulged, cracked or cut to the cords, soft spots, or separation from hose coupling.
- Always use a withdrawal hose of a correct length.

Coupling Device Assembly

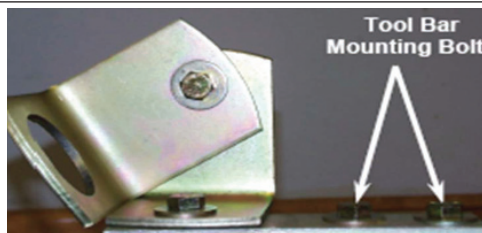
- Coupling device assembly must be installed and maintained per the manufacturer's specifications consisting of coupling device, double swivel, flat bar.
- Double Swivel: Coupling device must be mounted in a double swivel or other device authorized by the manufacturer that allows the coupling device to move freely in all directions; and separate as needed during an emergency. See Figure 1 for additional details.
- Flat Bar: See Figure 2 for details.

Figure 1



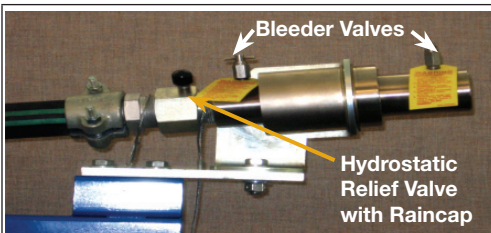
Parts of a double swivel and flat bar assembly. Bushings must be used in both bolted connections to allow full movement of the double swivel.

Figure 2



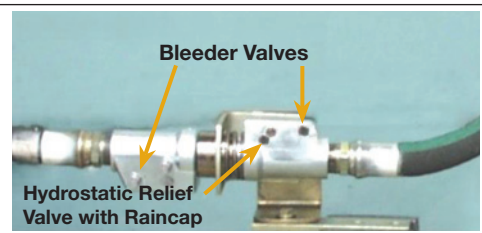
Flat bar is securely mounted to the application unit to provide a stable foundation for the coupling device and double swivel.

Figure 3



Bleeder (bleed) valves must be installed on both sides of the coupling device. A hydrostatic relief valve (hydrostat) must be positioned on the discharge side of the coupling device and between each pair of shut-off valves. The hydrostat must be 350-400 psi/NH₃ rated and be equipped with a rain cap.

Figure 4



- Other factors for effective operation of coupling device assembly:
 - Application unit components that may impede the operation of the coupling device assembly must be altered or removed.
 - Never secure the withdrawal hose in a way that impedes the operation of the coupling device assembly.

Safe handling of NH₃ involves:

- ✗ Preventing exposure by wearing personal protective equipment;
- ✗ Having emergency water for flushing exposures; and
- ✗ Preventing uncontrolled releases through safe handling, transport, and maintenance.

REQUIRED INCIDENT REPORTING

Immediately contact the following:

Local: 911

State: Minnesota Duty Officer @ 1-800-422-0798 (OUTSTATE) or 651-649-5451 (METRO)

Federal: National Response Center @ 1-800-424-8802 if release is 100+ lbs.

For More Information:

Go to the Minnesota Department of Agriculture (MDA) Anhydrous Ammonia (NH₃) Program web page:

<http://www.mda.state.mn.us/nh3>

Questions?

Call the MDA at 651-201-6275, or email Ed.Kaiser@state.mn.us.