



# Anhydrous Ammonia Safety: NH<sub>3</sub> Details for Dealers<sup>1</sup>

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National Institute for Occupational Safety and Health<sup>2</sup>

## PLANT & OPERATOR RESPONSIBILITIES

- Develop "Site Specific Safety Plan" which includes emergency, maintenance and troubleshooting procedures,
- Galvanized pipe is NOT to be used for anhydrous NH<sub>3</sub> service...even for temporary repairs,
- Identify "sign off" on material manifest before accepting delivery,
- Unloading lines MUST be compatible for NH<sub>3</sub> service,
- Be sure unloading lines are attached and secure,
- Be available during unloading to initiate emergency plans,
- Properly disconnect and secure plant valves following unloading,
- Set up inspection and testing procedures to be applied to ALL storage tanks,
- Equipment should:
  - be additives compatible,
  - meet NH<sub>3</sub> codes and standards,

- Any equipment replacement MUST be made "IN KIND"
  - same materials of construction,
  - same specifications.

## HOSE MAINTENANCE

- Unloading hoses must meet same 5 year replacement criteria as facility transfer tanks, and
- Stainless steel hoses are recommended for nurse tank risers.

## TANK PROCEDURES

- Nurse tank contents SHOULD NOT be transferred back to storage tank,
- Nurse tank cutting or welding is ONLY to be done by a certified welder with R-stamp or U-stamp, or equivalent...if baffle is detached...remove tank from service,
- A 5 gallon container of clean and easily accessible water MUST be mounted to the nurse tank, and
- Multiple water sources should be available.

## VALVE OPERATION

- Opening control valves too quickly may cause excess flow valves to shut,
- Manual valves are to be opened WIDE when transferring liquid ammonia from tank car to storage tank,

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2. This bulletin was produced at the University of Missouri - Columbia in coordination with the National Institute for Occupational Safety and Health, Centers for Disease Control, 200 Independence Avenue, SW, Washington, DC 20201. Phone: (800) 356-4674. Developed by Judy Barnes Oskam, Oklahoma State University and Doug Ross, University of Missouri - Columbia.

- Relief valves must be stamped with replacement date,
- Take extra caution when using additives in fill valves to minimize corrosion
  - Flush with additive-free ammonia, or
  - Add small amount of lubricating oil after additive,
- Applicator valves on top of tank should be protected by rollover cage... a strap-on design rollover cage should be considered for upgrading applicator tanks.

### **VEHICLE TOWING**

- Towing vehicles should be of adequate size to handle loaded trailer,
- Each towed trailer should have two (2) safety chains attached...adequately sized and criss-crossed to support the tongue, and
- Securely locked hitch pins designed for service.