

1513.0200 TRANSFER OF LIQUIDS.

Subpart 1. **Construction materials.** Anhydrous ammonia must always be at a temperature suitable for the material of construction and design of the receiving containers. Construction materials must be in accordance with Appendix R of API Standard 620, Recommended Rules for Design and Construction of Large Welded Low-Pressure Storage Tanks, for materials for low temperature service.

Subp. 2. **Operator.** At least one qualified operator experienced in transfer procedures and trained in accordance with Code of Federal Regulations, title 29, parts 1900-1910, shall monitor the transfer of ammonia from the time the transfer connections are first made until they are finally disconnected. The monitoring may be performed by a person on site, from a remote location, or by electronic means. Capability must be provided to halt the transfer in the event of an emergency.

Subp. 3. **Unloading cargo tanks and tank cars.** Cargo tanks and tank cars must not be unloaded with gas pressure other than from an ammonia source and must not be unloaded from any location other than a permanent storage location permitted according to Minnesota Statutes, section 18C.305.

Subp. 4. **Owner's authorization.** Containers and cylinders must be filled or used only upon the owner's authorization.

Subp. 5. **Gauging and charging.** Containers and cylinders must be gauged and charged only in the open atmosphere or in buildings provided for that purpose.

Subp. 6. **Pumps.** Pumps used for transferring ammonia must be recommended and labeled for ammonia service by the manufacturer.

A. Positive displacement pumps must be equipped with a pressure actuated by-pass valve on the discharge side of the pump. This valve must operate to limit the pressure developed by the pump to the maximum for which the pump is rated. Piping sized to carry the full capacity of the pump at the actuation pressure of this valve must connect the discharge of this valve with the container from which ammonia is being pumped. If this line is capable of being closed off by a valve, an additional by-pass device must be incorporated in the pump to by-pass back to the suction port. The pressure actuated by-pass valve and the return piping must be installed and operate according to the pump manufacturer's recommendations.

B. On the discharge side of the pump, before the by-pass valve line, a pressure gauge graduated from 0 to 400 psig must be installed.

C. Plant piping must contain shut-off valves located as close as practical to pump connections.

Subp. 7. **Compressors.** Compressors used for transferring or refrigerating ammonia must be suitable for ammonia service.

A. Compressors, except those used for refrigeration, must be designed for at least 250 psig working pressure. Crank cases of compressors not designed to withstand system pressure must be protected with a suitable pressure relief valve.

B. Plant piping must contain shut-off valves located as close as practical to compressor connections.

C. A pressure relief valve large enough to discharge the full capacity of the compressor must be connected to both sides before any shut-off valve.

D. Compressors must have pressure gauges at both the suction and discharge sides graduated from 0-400 psig.

E. Adequate means, such as a drainable liquid trap, must be provided on the compressor suction to minimize the entry of liquid into the compressor.

F. Where necessary to prevent contamination, an oil separator must be provided on the discharge side of the compressor.

Subp. 8. **Protection of lines.** Loading lines on nonrefrigerated containers must be protected by a backflow check valve or other suitable protection for liquid and an excess flow valve or other suitable protection for vapor. Unloading lines on nonrefrigerated containers must be protected by excess flow valves or other suitable protection. Piping must be sized so as not to restrict flow rates to the extent that protective devices will not function. The backflow check valves, excess flow valves, or equivalent protection must be installed in the facility piping so that any break will occur on the side of the hose or swivel connection.

Stationary storage installations must have approved automatically operated emergency shut-off valves, weakness or shear fittings, or other suitable protection installed in the fixed piping of the transfer system prior to where the hose or swivel piping is attached to the fixed piping. This requirement does not apply to the liquid barge, truck, and tank car loading or unloading lines, or a line feeding a fixed process system. Emergency shut-off valves must remain closed when the facility is not in use. The emergency shut-off valves, weakness or shear fittings, or equivalent protection must be installed in the facility piping so that any break will occur on the side of the hose or swivel connection. This must be completed by September 3, 1998.

Subp. 9. **Meters.** Meters used for the measurement of liquid anhydrous ammonia for retail sale must be recommended and labeled for ammonia service by the manufacturer.

A. Liquid meters must be designed for minimum working pressure of 250 psig.

B. The metering system must incorporate devices that will prevent the inadvertent measurement of vapor.

Statutory Authority: *MS s 18C.121*

History: *21 SR 277*

Published Electronically: *September 10, 2007*