Ohio Administrative Code

Rule 901:5-3-11 Filling and transfer to systems.

Effective: November 18, 1978

(A) Filling densities

(1) The filling densities of containers shall not exceed the following:

		Aboveground	Underground
(a)	Uninsulated	56%	58%
(b)	Insulated	57%	

(2) If containers are to be filled according to liquid level by any gaging method other than a fixed length dip tube gage, each container should have a thermometer well so that the internal liquid temperature can be easily determined and the amount of liquid and vapor in the container corrected to a sixty degrees Fahrenheit basis.

(B) Transfer of liquids

(1) Anhydrous ammonia shall always be at a temperature suitable for the material of construction and design of the receiving containers;

(2) At least one attendant shall supervise the transfer of liquids from the time the connections are first made until they are finally disconnected;

(3) Flammable gases or gases which will react with ammonia (such as air) shall not be used to unload tank cars or transport trucks;

(4) Containers shall be charged or used only upon authorization of the owner;

(5) Containers shall be gaged and charged only in the open atmosphere or in buildings approved for that purpose;

(6) Pumps used for transferring ammonia shall be recommended and labeled for ammonia service by the manufacturer.

(a) Pumps shall be designed for at least two hundred fifty psig working pressure;

(b) Positive displacement pumps shall have installed, off the discharge port, a constant differential relief valve or a bypass valve discharging into the suction post of the pump through a line of sufficient size to carry the full capacity of the pump at relief valve setting, which setting and installation shall be according to pump manufacturer's recommendations;

(c) On the discharge side of the pump, before the relief valve line, there shall be installed a pressure gage graduated from zero to four hundred psig;

(d) Systems piping shall contain shut-off valves located as close as practicable to pump connections;

(7) Compressors used for transferring ammonia shall be recommended and labeled for ammonia service by the manufacturer;

(a) Compressors shall be designed for at least two hundred fifty psig working pressure. Crank cases of compressors not designed to withstand system pressure shall be protected with a suitable safety relief valve;

(b) Systems piping shall contain shut-off valves located as close as practicable to compressor connections;

(c) A safety relief valve large enough to discharge the full capacity of the compressor shall be connected to the discharge before any shut-off valve;

(d) Compressors shall have pressure gages at suction and discharge graduated from zero to four hundred psig;

(e) Adequate means, such as a drainable liquid trap, shall be provided on the compressor suction to minimize the entry of liquid into the compressor;

(f) Where necessary to prevent contamination, an oil separator shall be provided on the discharge side of the compressor.

(8) Loading and unloading systems shall be protected by suitable devices to prevent emptying of the storage container or the container being loaded or unloaded in the event of severance of the hose. Backflow check valves or properly sized excess flow valves shall be installed where necessary to provide such protection. In the event that such valves are not practical, remotely operated shut-off valves may be installed;

(9) Meters used for the measurement of liquid anhydrous ammonia shall be recommended and labeled for ammonia service by the manufacturer;

(a) Liquid meters shall be designed for a minimum working pressure of two hundred fifty psig;

(b) The metering system shall incorporate devices that will prevent the inadvertent measurement of vapor.

(10) No transfer shall be made directly from a motor transport which exceeds three thousand water gallons in capacity to application equipment;

(C) Tank car unloading points and operations

(1) Provisions for unloading tank cars shall conform to the regulations of the U.S. department of transportation;

(2) Unloading operations shall be performed by reliable persons properly instructed and made responsible for careful compliance with all applicable procedures;

(3) Caution signs shall be so placed on the track or car as to give necessary warning to persons approaching car from open end or ends of siding and shall be left up until after car is unloaded and disconnected from discharge connections. Signs shall be of metal or other suitable material, at least twelve by fifteen inches in size and bear the words "STOP - Tank Car Connected" or "STOP - Men

At Work", the word "STOP" being in letters at least four inches high and the other words in letters at least two inches high. The letters shall be white on a blue background;

(4) The track of a tank car siding shall be substantially level;

(5) Brakes shall be set and wheels chocked on all cars being unloaded;

(6) Tank cars of anhydrous ammonia shall be unloaded only at approved locations meeting the requirements of rules 901:5-3-01 to 901:5-3-12 of the Administrative Code.

(D) Liquid level gaging device.

(1) Each container except those filled by weight shall be equipped with an approved liquid level gaging device;

(2) All gaging devices shall be arranged so that the maximum liquid level to which the container is filled is readily determined;

(3) Gaging devices that require bleeding of the product to the atmosphere such as the rotary tube, fixed tube, and slip tube devices, shall be designed so that the maximum opening of the bleed valve is not larger than no. 54 drill size unless provided with an excess flow valve;

(4) Gaging devices shall have a design pressure equal to or greater than the design pressure of the container on which they are installed;

(5) Fixed liquid level gages shall be so designed that the maximum volume of the container filled by liquid shall not exceed eighty-five per cent of its water capacity. The coupling into which the fixed liquid level gage is threaded must be placed at the eighty-five per cent level of the container. If located elsewhere, the dip tube of this gage must be installed in such a manner that it cannot be readily removed;

(6) Gage glasses of the columnar type shall be restricted to stationary storage installations. They shall be equipped with shut-off valves having metallic handwheels, with excess-flow valves, and

with extra heavy glass adequately protected with a metal housing applied by the gage manufacturer. They shall be shielded against the direct rays of the sun.