Kansas Administrative Regulations

Kansas Department of Agriculture

Article 10.—Anhydrous Ammonia

4-10-5. Tank trucks, semitrailers, and trailers for transportation of anhydrous ammonia.

Each tank truck, semitrailer, and trailer, except implements of husbandry, used for the transportation of anhydrous ammonia shall meet the following requirements: (a) Design pressure of containers.

(1) Each container shall be constructed in accordance with K.A.R. 4-10-2b and shall have a minimum design pressure of 250 psig.

(2) The shell or head thickness of each container shall not be less than $^{3}/_{16}$ of an inch.

(3) Baffles shall not be required for any cargo tank that is designed so that the container is loaded to capacity and discharged at one unloading point. All other containers having a capacity in excess of 500 gallons shall be equipped with suitable, semirigid baffle plates.

(4) Except for safety relief valves, liquid level gauging devices, and pressure gauges, all container openings shall be labeled to designate whether they communicate with liquid or vapor space. Labels may be located on valves.

(b) Mounting containers on truck.

(1) The container shall be attached to the cradle, frame, or chassis of a vehicle in a manner designed to withstand, in any direction, that amount of static loading equal to twice the weight of the container when filled and its attachments. The safety factor used shall be not less than four and shall be based on the ultimate strength of the material to be used.

(2) "Hold-down" devices, when used, shall anchor the container to the cradle, frame, or chassis in a suitable and safe manner that will not introduce an undue concentration of stresses.

(3) If any vehicle is designed and constructed so that cargo tanks constitute, in whole or in part, the stress member used in lieu of a frame, the cargo tanks shall be designed to withstand the stresses thereby imposed.

(4) All connections, including any hose installed in the bottom of a container, shall not be lower than the lowest horizontal edge of the trailer axle.

(5) While in transit, both ends of each transfer hose shall be secured.

(6) If the cradle and the container are not welded together, a suitable material shall be used between them to eliminate metal-to-metal friction.

(c) Container valves and appurtenances.

(1) Each container shall be equipped with a fixed liquid level gauge.

(2) Each container shall be equipped with a fully operational pressure-indicating gauge that has a dial graduated from 0-400 psi.

(3) Nonrecessed container fittings and appurtenances shall be protected against damage.

(4) Filling connections shall be provided with approved automatic valves to prevent backflow whenever the filling connection is broken.

(5) Except for safety relief valves and those connections specifically exempted by K.A.R. 4-10-2e(b) and K.A.R. 4-10-2e(d), all connections to containers shall be provided with approved excess-flow valves.

(6) All containers shall be equipped with an approved vapor return valve.

(d) Safety devices.

(1) The discharge from each safety relief valve shall be directed upward and away from the container and shall flow in an unobstructed manner into the atmosphere. Loosely fitting rain caps shall be used.

(2) Each unloading line shall be provided with an excess-flow valve at the point where the hose leaves the truck.

(e) Marking of containers. Each side and the rear of every container shall be conspicuously and legibly marked on a background of sharply contrasting color with the words "anhydrous ammonia" in letters at least four inches high and shall be placarded in compliance with applicable D.O.T. regulations.

(f) Piping, tubing, and fittings.

(1) All piping, tubing, and metering or dispensing devices shall be securely mounted and shall be protected against damage.

(2) Threaded pipe shall be extra heavy and comply with ASME schedule 80. Standard weight pipe that complies with ASME schedule 40 may be used if the joints are welded.

(g) Electrical equipment and lighting. Tank trucks, tank trailers, and tank semitrailers shall not be equipped with any artificial light other than electric light. Electric lighting circuits shall have suitable overcurrent protection.

(h) Trailers and semitrailers.

(1) Each trailer or semitrailer shall be equipped with a reliable system of brakes that comply with D.O.T. regulations.

(2) Each trailer or semitrailer shall have lights that comply with D.O.T. regulations.

(i) Safety equipment. All tank trucks, trailers, and semitrailers shall be equipped with the following:

(1) An approved gas mask that has current ammonia canisters having intact seals and that covers the entire face;

(2) one pair of rubber or suitable plastic protective gloves;

(3) one pair of rubber or suitable plastic protective boots;

(4) one rubber or suitable plastic protective slicker, or rubber or suitable plastic protective rain suit, or both;

(5) a pair of flexible-fitting, splash-proof goggles; and

(6) a container of not less than five gallons of clean water.

(j) Transfer of liquids.

(1) Each container shall be loaded by any of the following:

(A) Weight;

(B) a suitable liquid level gauging device; or

(C) a suitable meter.

(2) Pumps or compressors designed and installed in accordance with K.A.R. 4-10-2(j) and properly protected against physical damage may be mounted on ammonia tank trucks and trailers.

(k) Protection against collision. Each end-fitted tank truck and each semitrailer shall be provided with properly attached steel bumpers or a chassis extension to protect the tank, piping, valves, and fittings in case of collision.

(l) Conversion from other service to anhydrous ammonia. Tanks used for the transporting or storage of materials other than anhydrous ammonia shall be emptied of the material previously hauled, and the pressure in the tank shall be reduced to atmospheric pressure. If the material previously hauled in the container will be harmful to the anhydrous ammonia, then the tank shall be purged before being placed in anhydrous ammonia service, and all appurtenances shall be changed to comply with these regulations.

(m) Mobile containers. Except for tank trucks and semitrailers that comply with K.A.R. 4-10-5a, mobile containers shall be unloaded only at approved locations.

(n) Parking. Except in emergencies, tank trucks, semitrailers, or trailers transporting anhydrous ammonia shall not be parked in cities or in densely populated areas.

(o) Conversion of tanks from anhydrous ammonia to other service. Tanks used for the transportation of anhydrous ammonia shall be emptied and purged. Ammonia vapor shall be vented into an adequate portable supply of water and not into the atmosphere. An adequate supply of water shall be deemed to be five gallons of water per each one gallon of liquid ammonia. The aqueous ammonia solution resulting from the purging process shall be disposed of properly.

(Authorized by and implementing K.S.A. 2-1212; effective Jan. 1, 1966; amended Jan. 1, 1971; amended Jan. 1, 1973; amended May 1, 1986; amended, T-87-9, May 1, 1986; amended May 1, 1987; amended May 1, 1988; amended April 13, 2001.)