

## Iowa's adaptation of the new Ammonia Standards

Iowa has adopted the ANSI/CGA G-2.1-2014 Safety Requirements for the Storage and Handling of Anhydrous Ammonia in the Administrative Rules. As IDALS had done with the 1989 ANSI K-61.1 Ammonia Standards, the standard was adopted with exceptions. This document highlights content of the exceptions (rules) for the benefit of Anhydrous Ammonia handlers in Iowa to understand the changes. There is no grace period for compliance with the new rules as IDALS has worked hard for nearly 3 years to explain the new ANSI/CGA Standard and the Iowa Administrative Rules. The adopted exceptions will be explained in the same order as written in the standard. Note: The exceptions are now official rules and can be viewed at <https://www.legis.iowa.gov/docs/iac/chapter/10-26-2016.21.43.pdf> . You will need to reference ANSI/CGA to fully interpret them.

As in the past, Iowa will require any person required; to handle, transfer, transport, or otherwise work with ammonia shall be trained once each calendar year prior to handling to understand the properties of ammonia, to become competent in safe operating practices, and to take appropriate actions in the event of a leak or an emergency. We will be asking to see documented SOP's during our inspections.

No longer will IDALS require two full face gas masks at storage locations, each with one spare ammonia canister in a readily accessible location. The requirement for full face mask respirators is not written in the new standard with the exception of cargo tank (transport) drivers. If you have an emergency response plan you must have respiratory protection but the majority of facilities that IDALS regulates have only an emergency action plan. However since OSHA 49 CFR 1910.111 requires the face mask, Iowa OSHA (IOSH) will still require them. A face shield is required to be part of the safety equipment on hand, along with slicker and boots, gloves and goggles.

Anhydrous Ammonia equipment and components must be installed, operated, and maintained in accordance with the manufacturer's recommendations or best engineering practices. This was previously implied but is now stated in the Iowa proposed rules. As required in the new standard, IDALS will require pressure relief valves to be replaced after 5 years from the manufactured date. Hoses will also be required to be replaced according to the expiration date. Installation dates for both will still have to be documented, and IDALS suggest for your records, that expiration dates be recorded as well. Any flexible metal connection must be double braided and have a minimum working pressure of 350 psi. Metal flexible connections, if not labeled with such, shall have the following information attached to the outer hose ends: Anhydrous Ammonia; XXX psig (Maximum Working Pressure); Manufacturer's Name or Trademark; Year of Manufacture.

For installation of Anhydrous Ammonia storage systems, the minimum storage distances listed in the new standard will be listed in the Iowa Rules, the most important change being the distance from a mainline of a railroad being 100ft. The other distances will be much the same as in the past. IDALS reserves the interpretation of "a place of public assembly".

Areas within 10 ft. (3m) of a storage container shall be maintained clear of dry grass and weeds and other combustible materials. IDALS also requires areas be kept clear of debris or any item that would interfere with emergency actions or evacuation as well as materials or objects not necessary for the operation of the storage system and components. Working platforms are still required at the risers.

Storage system and components, including all exposed piping, must be protected from physical damage resulting from impact by moving equipment and stationed clearly to protect storage systems and piping. The requirement for bulkheads at the transport connections are included in the new standard and explained in clearer fashion.

**Note:** The emergency shut-off valve in the piping to the risers must be in front of the pump, (intake side), preferably close to the appurtenance in the storage system supplying the pump. This is a change that IDALS has encouraged in repair and new construction for a number of years. Consider keeping the original and adding the new one.

Anhydrous ammonia shall be vented into an adequate supply of water. If a hose is used to inject ammonia into water, the hose should be secured or weighted to assure the ammonia goes into the water. On nurse tanks and especially "double" tank systems, additional excess flow valves must be added to be sure

escaping flow in an incident can be controlled. They must work! Mechanical remote shut-offs may be added or substituted.

On implements of husbandry (nurse tanks), all vapor and liquid connections shall be closed except during operation periods.

Each container (tank) shall have a 5 gal water container for emergency use.

**Note:** The list above may not seem like many changes. That is because many of the exceptions Iowa had in place are covered in the new ANSI/CGA Standard. The changes the new standards bring are on the Commercial Feed and Fertilizer website (<http://www.iowaagriculture.gov/feedandfertilizer.asp>) under "Anhydrous Ammonia Regulation Changes and Guidelines", along with other useful information for  $NH_3$ . The new ANSI/CGA Standards are now the accepted standard in Anhydrous Ammonia storage and handling. With the adoption of the new rules, Iowa and other regulatory agencies have the ability to expect compliance with the standards.