ALUMINUM CHLORIDE STORAGE AND HANDLING

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Shipment

Aluminum chloride solution is shipped in fiberglass or rubber lined trucks which conform to D.O.T. specifications as well as the laws of the states in which they operate.

The average shipment is 4,200 gallons or approximately 45,000 pounds. Aluminum chloride solution is unloaded through a 2 inch reinforced rubber hose using air pressure supplied by the truck's air compressor. The fittings are 2-inch cam & groove quick connect couplers.

Storage and Handling

Tanks for receiving tank truck deliveries should have an available capacity of 1.5 times the delivery amount or a minimum of 6,750 gallons capacity. An easy means of determining the level in the tanks should be available, such as a sight tube or dip stick, so that the tank will not be overfilled during delivery.

The tank should have a minimum of a 6" vent to relieve air pressure during the unloading process. Air vented from the tank may contain small amounts of hydrochloric acid and should be released/processed in accordance with local, state or federal regulations. The tank should also have proper overflow protection and containment. Note: exposed metal will oxidize in areas near aluminum chloride storage.

For optimum product performance, aluminum chloride should be consumed within three (3) years of delivery.

Equipment and Piping

Storage Tanks: Tanks may be constructed of fiberglass or epoxy lined steel. Polypropylene or polyethylene tanks have also been used.

Piping: Schedule 80 CPVC or polymer lined piping can be used. Glass reinforced plastic or hard rubber are also suitable materials for piping.

Gravity feed when possible. Initial pump cost and maintenance are eliminated. When centrifugal pumps are used they should be sized for head and flow requirements. Wetted pump parts should be Hastelloy, poly lined, plastic or fiberglass. Packing may be of graphite or Teflon.

Compatible gasket materials include Teflon, neoprene or rubber.

There are several types of valves suitable for handling aluminum chloride solution. Their wetted parts should be Teflon, CPVC, Hastelloy C, or rubber lined.

Feed rates and metering can be accomplished using rotameters, volumetric dis-placement pumps, weighing devices and mechanical feeders. The wetted parts of these devices should be constructed of Teflon, CPVC, Hastelloy C or rubber.

Maintenance of the equipment should follow general industry standards and manufacturer's recommendations.

Piping and pumps to be taken out of service for more than thirty days should be thoroughly rinsed with water.

Safety

Aluminum chloride is an acidic, inorganic, corrosive liquid and must be handled with caution.

Aluminum chloride is hazardous in case of eye contact (irritant, corrosive), of skin contact (irritant, corrosive), of ingestion (corrosive)

- There is a risk of serious damage to eyes. Redness, watering, and itching characterize inflammation of the eye.
- Skin contact may cause burns. Skin exposure is characterized by itching, scaling, reddening or occasionally, blistering.

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- Inhalation of the spray mist may cause irritation of the respiratory tract, characterized by coughing, choking or shortness of breath. Liquid or spray mist may cause tissue damage, particularly on mucous membranes of eyes, mouth and respiratory tract.

Aluminum chloride solution can be very slippery on floors and other surfaces and may be a significant slip hazard.

Suggested first aid for contact with aluminum chloride is:

Inhalation: Remove from exposure; seek medical treatment if symptoms occur.

Eye Contact: Immediately flush with water for at least 15 minutes, occasionally lifting upper and lower lids. Seek medical attention immediately.

Skin Contact: Immediately rinse the affected area with tepid water, removing contaminated clothing. Rinse with water for a minimum of 15 minutes. Seek medical attention if there is any indication of a chemical burn.

Ingestion: Do not induce vomiting. If conscious, have the victim rinse mouth then drink large amounts of water. Seek medical attention immediately.

After first aid, get appropriate in-plant, paramedic or community medical support.

Aluminum Chloride	CAS # 7446-70-0	**Specific Gravity** 1.27—1.29 **% AlCl3** 27 - 29 **Freezing Point** - 30°F **Boiling Point** > 230°F **pH** 0.0—0.9 **Solubility in Water** 100% **Stability** Stable. **Hazardous polymerization does not occur.**

Spill Cleanup

Spill procedures are dictated by site wastewater flow controls and will vary from site to site. General procedures are provided in this document; but authorization for any wastewater discharge must be obtained prior to the discharge. If directed to an industrial sewer, wash down with large volumes of water. Spills can be neutralized and absorbed with soda ash or lime; but neutralization will release carbon dioxide, which can generate a breathing hazard. For large spills, dike far ahead of liquid spill for later disposal. Do not release into storm sewers or water ways. Pump residue into storage containers or neutralize with lime or soda ash. Neutralization will result in a chemical reaction and will release carbon dioxide, which can generate a breathing hazard.

Neutralization will generate a slippery residue. Wash or neutralize impacted areas after liquid removal to remove residues. Aluminum chloride does not have a reportable quantity under CERCLA.

Local and state regulations may require reporting of spills of a hazardous material. Spills occurring during the shipment of a hazardous material or during loading/unloading operations may have to be reported to the Department of Transportation (DOT) as specified in 49 CFR §171.16 Detailed hazardous materials incident re-ports.

If a facility plans to respond to a spill of aluminum chloride solution, the facility must have an emergency action plan and must train their employees. The requirements for planning and training can be found in 29 CFR §1910.120

Hazardous waste operations and emergency response.

Disposal of any hazardous material must comply with local, state and federal regulations. The proper disposal of aluminum chloride spill residuals will be dependent on the circumstances of the spill.

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