

# ALUMINUM SULFATE SOLUTION

ASX

## CAUTIONARY RESPONSE INFORMATION

<b>Common Synonyms</b>	Liquid	Colorless	Odorless
<p><b>Wear goggles, approved respirator, and rubber overclothing (including gloves).</b>  <b>Avoid inhalation.</b>  <b>Stop discharge if possible.</b>  <b>Isolate and remove discharged material.</b>  <b>Notify local health and pollution control agencies.</b></p>			
<b>Fire</b>	Not flammable. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Use extinguishing agents appropriate for the surrounding fire.		
<b>Exposure</b>	CALL FOR MEDICAL AID.  <b>VAPOR</b> Irritating to eyes, nose and throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.  <b>LIQUID</b> Irritating to skin and eyes. If swallowed, may cause nausea vomiting or diarrhea. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink large quantity of water. Induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.		
<b>Water Pollution</b>	Effect of low concentrations on aquatic life is unknown. May be dangerous if it enters water intake. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

### 1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

### 2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 43; Miscellaneous Water Solutions
- 2.2 **Formula:** Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>·49H<sub>2</sub>O
- 2.3 **IMO/UN Designation:** Not listed.
- 2.4 **DOT ID No.:** Not listed
- 2.5 **CAS Registry No.:** 10043-01-3
- 2.6 **NAERG Guide No.:** 154
- 2.7 **Standard Industrial Trade Classification:** 52349

### 3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Wear impervious chemical protective clothing, including gloves to prevent skin contact with the liquid. Use splash-proof chemical safety goggles or face shield to prevent eye contact with liquid. Approved respirator should be used in the event of vapor concentrations.
- 3.2 **Symptoms Following Exposure:** Vapor irritates eyes, nose and respiratory tract due to formation of sulfuric acid. Ingestion of large doses causes gastric irritation, nausea, vomiting, and purging. Liquid irritates eyes and skin.
- 3.3 **Treatment of Exposure:** Call for medical aid. **INHALATION:** Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. **INGESTION:** Give large amounts of water. Induce vomiting. **EYES:** Flush with water for at least 15 min., occasionally lifting lids. **SKIN:** Remove contaminated clothing and shoes. Flush with copious amounts of water.
- 3.4 **TLV-TWA:** Not listed.
- 3.5 **TLV-STEL:** Not listed.
- 3.6 **TLV-Ceiling:** Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; oral rat LD<sub>50</sub> > 5.0 g/kg
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Data not available.
- 3.10 **Vapor (Gas) Irritant Characteristics:** Data not available.
- 3.11 **Liquid or Solid Characteristics:** Data not available.
- 3.12 **Odor Threshold:** Data not available.
- 3.13 **IDLH Value:** Not listed.
- 3.14 **OSHA PEL-TWA:** Not listed.
- 3.15 **OSHA PEL-STEL:** Not listed.
- 3.16 **OSHA PEL-Ceiling:** Not listed.
- 3.17 **EPA AEGL:** Not listed

### 4. FIRE HAZARDS

- 4.1 **Flash Point:** Not flammable
- 4.2 **Flammable Limits in Air:** Not pertinent.
- 4.3 **Fire Extinguishing Agents:** Use extinguishing agents appropriate for the surrounding fire.
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent.
- 4.5 **Special Hazards of Combustion Products:** Produces sulfuric acid upon decomposition.
- 4.6 **Behavior in Fire:** Not pertinent.
- 4.7 **Auto Ignition Temperature:** Not pertinent.
- 4.8 **Electrical Hazards:** Not pertinent.
- 4.9 **Burning Rate:** Not pertinent.
- 4.10 **Adiabatic Flame Temperature:** Not pertinent.
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent.
- 4.12 **Flame Temperature:** Not pertinent.
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent.
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

### 5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction.
- 5.2 **Reactivity with Common Materials:** Weakly corrosive to carbon steel. Noncorrosive to stainless steel fiberglass, polyethylene, or polyvinyl chloride.
- 5.3 **Stability During Transport:** Stable.
- 5.4 **Neutralizing Agents for Acids and Caustics:** Neutralize with lime.
- 5.5 **Polymerization:** Does not polymerize.
- 5.6 **Inhibitor of Polymerization:** Not pertinent.

### 6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** Data not available.
- 6.2 **Waterfowl Toxicity:** Data not available.
- 6.3 **Biological Oxygen Demand (BOD):** None.
- 6.4 **Food Chain Concentration Potential:** None.
- 6.5 **GESAMP Hazard Profile:** Not listed

### 7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Technical grades of varying concentrations.
- 7.2 **Storage Temperature:** Ambient.
- 7.3 **Inert Atmosphere:** No requirement.
- 7.4 **Venting:** Open.
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** 3

### 8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Not listed
- 8.2 **49 CFR Class:** Not pertinent.
- 8.3 **49 CFR Package Group:** Not listed.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 5000
- 8.7 **EPA Pollution Category:** D
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Yes

### 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15°C and 1 atm:** Liquid
- 9.2 **Molecular Weight:** 1235.7
- 9.3 **Boiling Point at 1 atm:** 214°F = 101°C = 374°K
- 9.4 **Freezing Point:** 3.9°F = -15.6°C = 257.4°K
- 9.5 **Critical Temperature:** Data not available.
- 9.6 **Critical Pressure:** Data not available.
- 9.7 **Specific Gravity:** 1.29 - 1.34 at 15°C (solid)
- 9.8 **Liquid Surface Tension:** Data not available.
- 9.9 **Liquid Water Interfacial Tension:** Data not available.
- 9.10 **Vapor (Gas) Specific Gravity:** Data not available.
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Data not available.
- 9.12 **Latent Heat of Vaporization:** Data not available.
- 9.13 **Heat of Combustion:** Not pertinent.
- 9.14 **Heat of Decomposition:** Data not available.
- 9.15 **Heat of Solution:** Data not available.
- 9.16 **Heat of Polymerization:** Not pertinent.
- 9.17 **Heat of Fusion:** Data not available.
- 9.18 **Limiting Value:** Data not available.
- 9.19 **Reid Vapor Pressure:** Data not available.

### NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
70	11.100		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
68	49.000		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E		C U R R E N T L Y  N O T  A V A I L A B L E