




# Safety Data Sheet

Section 1. Identification	
<b>Product Identification and Item Numbers:</b>	Aluminum Chloride 35% in 70% Isopropanol Aqueous Solution (AC/35/70/1, AC/35/70/2, AC/35/70/PT)
<b>Product Description:</b>	A solution of Aluminum Chloride (hexahydrate) USP 35% w/v in isopropyl alcohol
<b>Recommended use and restrictions on use:</b>	N/A
<b>Supplier:</b>	Delasco 608 13 <sup>th</sup> Avenue Council Bluffs, IA 51501 1-712-323-3269 <a href="http://www.delasco.com">www.delasco.com</a> <a href="mailto:questions@delasco.com">questions@delasco.com</a>
<b>In Case of Emergency, Contact:</b>	Chemtrec (24 hour) 1-800-424-9300

Section 2. Hazard(s) Identification		
<b>Classification:</b>		
Flammable Liquid (Category 2) Eye Irritant (Category 2) Skin Corrosive (Category 1B) Metal Corrosive (Category 1)		
<b>Labeling:</b>		
<b>Hazard symbol(s):</b>		
		
GHS07: exclamation mark	GHS02: flame	GHS05: corrosive
<b>Signal word:</b>	<b>Danger!</b>	
<b>Hazard statements:</b>		
H225: Highly flammable liquid and vapor. H319: Causes serious eye irritation. H336: May cause drowsiness or dizziness. H314: Causes severe burns and eye damage. H290: May be corrosive to metals.		
<b>Precautionary statements:</b>		
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P233: Keep container tightly closed. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P261: Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264: Wash skin thoroughly after handling. P271: Use only in a well-ventilated area. P280: Wear protective gloves/ protective clothing/ eye protection/ face protection. P303 + P361 + P353: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312: Call a POISON CENTER or doctor/ physician if you feel unwell. P337 + P313: If eye irritation persists: Get medical advice/ attention. P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. P403 + P233 + P235: Store in a well-ventilated place. Keep container tightly closed. Keep cool. P501: Dispose of contents/ container to an approved waste disposal plant.		

<b>Section 3. Composition/Information on Ingredients</b>	
<b>Chemical Name and Concentration:</b>	Aluminum Chloride, Hexahydrate 35% w/v Water, 20.4% w/v Isopropyl Alcohol, 44.6% w/v
<b>Other Names, Common Names, Synonyms:</b>	N/A
<b>CAS Number, other unique identifiers:</b>	Mixture: Water CAS# 7732-18-5 Isopropyl Alcohol CAS# 67-63-0 Aluminum Chloride, Hexahydrate CAS# 7784-13-6
<b>Other classified impurities or stabilizers:</b>	N/A
<b>Other ingredients posing health hazards:</b>	N/A
<b>Concentration of other hazardous ingredients:</b>	N/A

<b>Section 4. First-aid Measures</b>	
<b>Inhalation exposure:</b>	Inhalation: If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.
<b>Skin exposure:</b>	Skin Contact: Wash affected area with soap and water. Get medical advice if irritation develops. Remove contaminated clothing.
<b>Eye contact:</b>	Eye Contact: Immediately wash (irrigate) the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately.
<b>Ingestion:</b>	Ingestion: Get medical attention immediately.

<b>Section 5. Fire Fighting Measures</b>											
<b>Suitable / unsuitable extinguishing media:</b>	Use dry chemical, foam, or carbon dioxide.										
<b>Specific hazards / combustion products:</b>	<ul style="list-style-type: none"> <li>• HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.</li> <li>• Vapors may form explosive mixtures with air.</li> <li>• Vapors may travel to source of ignition and flash back.</li> <li>• Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).</li> <li>• Containers may explode when heated.</li> <li>• Fire will produce irritating, corrosive and/or toxic gases.</li> </ul>										
<b>Special protective equipment and precautions for fire-fighters:</b>	<ul style="list-style-type: none"> <li>• Wear positive pressure self-contained breathing apparatus (SCBA).</li> <li>• Structural firefighters' protective clothing will only provide limited protection</li> <li>• Move containers from fire area if you can do it without risk.</li> </ul>										
<b>NFPA Hazard Classification</b>	<table> <tr> <td>Health – 2</td> <td>0-Minimal</td> </tr> <tr> <td>Flammability – 3</td> <td>1-Slight</td> </tr> <tr> <td>Instability – 0</td> <td>2-Moderate</td> </tr> <tr> <td></td> <td>3-Serious</td> </tr> <tr> <td></td> <td>4-Severe</td> </tr> </table>	Health – 2	0-Minimal	Flammability – 3	1-Slight	Instability – 0	2-Moderate		3-Serious		4-Severe
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<b>Section 6. Accidental Release Measures</b>	
<b>Personal precautions and protective equipment:</b>	<ul style="list-style-type: none"> <li>• ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).</li> <li>• All equipment used when handling the product must be grounded.</li> <li>• Do not touch or walk through spilled material.</li> <li>• Stop leak if you can do it without risk.</li> <li>• Wear chemical resistant gloves.</li> </ul>
<b>Environmental Precautions:</b>	Avoid release into environment.
<b>Containment / clean up methods:</b>	<ul style="list-style-type: none"> <li>• Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.</li> <li>• Use clean non-sparking tools to collect absorbed material.</li> </ul>

<b>Section 7. Handling and Storage</b>	
<b>Precautions for safe handling:</b>	Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate personal protective equipment and avoid contact with skin, eyes, and clothing. Wear chemical resistant gloves. Wear safety glasses.
<b>Conditions for safe storage:</b>	Keep tightly closed and cool, but protect from freezing. Protect containers against physical damage. Store unopened containers under cool, dry and ventilated conditions. Keep away from heat, sparks and flame.
<b>Incompatibilities to avoid:</b>	Avoid strong bases, Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids, isocyanates.

<b>Section 8. Exposure Controls and Personal Protection</b>	
<b>OSHA Permissible Exposure Limit (PEL):</b>	400 ppm (980 mg/m <sup>3</sup> ) TWA – <b>Isopropyl alcohol</b>
<b>Threshold Limit Value (TLV):</b>	400 ppm (983 mg/m <sup>3</sup> ) TWA, 500 ppm (1,230 mg/m <sup>3</sup> ) STEL – <b>Isopropyl alcohol</b>
<b>Other exposure limits (for Isopropyl alcohol):</b>	<b>NIOSH REL:</b> 400 ppm (980 mg/m <sup>3</sup> ) TWA, 500 ppm (1,225 mg/m <sup>3</sup> ) STEL <b>LEL:</b> 2.0% (10% LEL, 2,000 ppm) <b>Original (SCP) IDLH:</b> 12,000 ppm
<b>Engineering controls:</b>	Provide eyewash facility and a safety shower nearby.
<b>Personal protective equipment:</b>	<b>Respiratory Protection</b> Provide adequate ventilation. In case of insufficient ventilation, or unknown exposure levels, wear NIOSH/MSHA approved respirators. <b>Eye Protection</b> Wear appropriate safety glasses with side shields or goggles to prevent eye contact. <b>Skin Protection</b> Wear appropriate personal protective clothing to prevent skin contact. Wear chemical resistant gloves. Immediately wash the skin when it becomes contaminated. Work clothing that becomes wet should be immediately removed.
<b>Other personal protection measures:</b>	Provide nearby eyewash station and safety shower.

<b>Section 9. Physical and Chemical Properties</b>	
<b>Appearance (physical state, color, etc.):</b>	Clear, colorless liquid.
<b>Odor:</b>	Rubbing alcohol odor.
<b>Odor threshold:</b>	Data not available
<b>pH:</b>	Acidic
<b>Melting point / freezing point:</b>	Data not available for this mixture.
<b>Initial boiling point and boiling range:</b>	Data not available for this mixture.
<b>Flash point:</b>	Data not available for this mixture.
<b>Evaporation rate:</b>	Data not available for this mixture.
<b>Flammability</b>	Data not available for this mixture.
<b>Upper / lower flammability or explosive limits:</b>	Data not available for this mixture.
<b>Vapor Pressure:</b>	Data not available for this mixture.
<b>Vapor density:</b>	Data not available for this mixture.
<b>Relative density:</b>	Data not available for this mixture.
<b>Solubility:</b>	Data not available for this mixture.
<b>Partition coefficient: n-octanol/water:</b>	Data not available for this mixture.
<b>Auto-ignition temperature:</b>	Data not available for this mixture.
<b>Decomposition temperature:</b>	Data not available for this mixture.
<b>Viscosity:</b>	Data not available for this mixture.

<b>Section 10. Stability and Reactivity</b>	
<b>Chemical stability:</b>	The product is stable.
<b>Possibility of hazardous reactions:</b>	May form explosive peroxides.

<b>Conditions to avoid (static, shock, vibration...)</b>	Protect containers against physical damage, freezing, excessive heat, flames, sparks.
<b>Incompatible materials:</b>	Strong bases. Organic materials. Oxidizing agents.
<b>Hazardous decomposition products:</b>	Hydrogen chloride, irritating and toxic fumes and gases, aluminum oxide.

<b>Section 11. Toxicological Information</b>																																																									
<b>Routes of exposure:</b>	Inhalation, ingestion, skin and/or eye contact.																																																								
<b>Acute Symptoms (acute):</b>	<ul style="list-style-type: none"> <li>Inhalation: Corrosive and irritating to respiratory tract.</li> <li>Ingestion: May cause nausea, vomiting, diarrhea. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects. Aluminum may be readily absorbed from the gastrointestinal tract.</li> <li>Skin contact: Irritating and corrosive.</li> <li>Eye contact: Irritating and corrosive. Causes eye burns. May cause chemical conjunctivitis and corneal damage.</li> </ul>																																																								
<b>Symptoms (chronic): Chronic effects from short and long term exposure:</b>	Chronic effects may be delayed.																																																								
<b>Numerical measures of toxicity (e.g., acute toxicity estimates):</b>	<p><b>ACUTE TOXICITY DATA (Isopropyl Alcohol):</b></p> <p><b>Lethal concentration data:</b></p> <table border="1"> <thead> <tr> <th>Species</th> <th>Reference</th> <th>LC<sub>50</sub> (ppm)</th> <th>LC<sub>Lo</sub> (ppm)</th> <th>Time</th> <th>Adjusted 0.5-hr LC (CF)</th> <th>Derived value</th> </tr> </thead> <tbody> <tr> <td>Rat</td> <td>Carpenter et al. 1949</td> <td>-----</td> <td>16,000</td> <td>4 hr</td> <td>32,000 ppm (2.0)</td> <td>3,200 ppm</td> </tr> <tr> <td>Mouse</td> <td>NCI 1974</td> <td>-----</td> <td>12,800</td> <td>3 hr</td> <td>23,040 ppm (1.8)</td> <td>2,304 ppm</td> </tr> <tr> <td>Rat</td> <td>Smyth 1956</td> <td>12,000</td> <td>-----</td> <td>8 hr</td> <td>24,000 ppm (2.0)</td> <td>2,400 ppm</td> </tr> </tbody> </table> <p><b>Lethal dose data:</b></p> <table border="1"> <thead> <tr> <th>Species</th> <th>Reference</th> <th>Route</th> <th>LD<sub>50</sub> (mg/kg)</th> <th>LD<sub>Lo</sub> (mg/kg)</th> <th>Adjusted LD</th> <th>Derived value</th> </tr> </thead> <tbody> <tr> <td>Rat</td> <td>Antonova &amp; Salmina 1978</td> <td>Oral</td> <td>5,045</td> <td>-----</td> <td>14,126 ppm</td> <td>1,413 ppm</td> </tr> <tr> <td>Mouse</td> <td>Antonova &amp; Salmina 1978</td> <td>Oral</td> <td>3,600</td> <td>-----</td> <td>10,080 ppm</td> <td>1,008 ppm</td> </tr> <tr> <td>Rabbit</td> <td>WHO 1970</td> <td>Oral</td> <td>6,410</td> <td>-----</td> <td>17,948 ppm</td> <td>1,795 ppm</td> </tr> </tbody> </table> <p><b>Other animal data:</b> RD<sub>50</sub> (mouse), 17,693 ppm [Alarie 1981]. It has been reported that rats survived when exposed to 12,000 ppm for 4 hours [Smyth 1956].</p> <p><b>Human data:</b> Ten volunteers exposed for 3 to 5 minutes to 200, 400, or 800 ppm reported mild to moderate irritation of the eyes, nose, and throat at the two higher concentrations [Nelson et al. 1943]. The probable lethal oral dose has been reported to be 190 grams [Gosselin et al. 1984]. [Note: An oral dose of 190 grams is equivalent to a worker being exposed to about 50,700 ppm for 30 minutes, assuming a breathing rate of 50 liters per minute and 100% absorption.]</p> <p><b>Revised IDLH:</b> 2,000 ppm [LEL]  <b>Basis for revised IDLH:</b> Based on health considerations and acute toxicity data in humans [Gosselin et al. 1984; Nelson et al. 1943] and animals [NCI 1974; Smyth 1956], a value of about 2,400 ppm would have been appropriate for isopropyl alcohol. However, the revised IDLH for isopropyl alcohol is 2,000 ppm based strictly on safety considerations (i.e., being 10% of the lower explosive limit of 2%).</p>	Species	Reference	LC <sub>50</sub> (ppm)	LC <sub>Lo</sub> (ppm)	Time	Adjusted 0.5-hr LC (CF)	Derived value	Rat	Carpenter et al. 1949	-----	16,000	4 hr	32,000 ppm (2.0)	3,200 ppm	Mouse	NCI 1974	-----	12,800	3 hr	23,040 ppm (1.8)	2,304 ppm	Rat	Smyth 1956	12,000	-----	8 hr	24,000 ppm (2.0)	2,400 ppm	Species	Reference	Route	LD <sub>50</sub> (mg/kg)	LD <sub>Lo</sub> (mg/kg)	Adjusted LD	Derived value	Rat	Antonova & Salmina 1978	Oral	5,045	-----	14,126 ppm	1,413 ppm	Mouse	Antonova & Salmina 1978	Oral	3,600	-----	10,080 ppm	1,008 ppm	Rabbit	WHO 1970	Oral	6,410	-----	17,948 ppm	1,795 ppm
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<b>NTP carcinogen:</b>	Not listed																																																								
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<b>ACGIH carcinogen:</b>	A4: Not classifiable as a human carcinogen (Aluminum metal and insoluble compounds)																																																								
<b>IARC potential carcinogen:</b>	Group 3: Not classifiable as to its carcinogenicity to humans.																																																								
<b>OSHA carcinogen:</b>	Not listed																																																								

<b>Section 12. Ecological Information (Non-mandatory)</b>	
Ecotoxicity (aquatic and terrestrial, where available):	Not available.
Persistence and degradability:	Not available.
Bioaccumulative potential:	Not available.
Mobility in soil:	Not available.
Other adverse effects:	Not available.

<b>Section 13. Disposal Considerations (Non-mandatory)</b>	
Safe methods of disposal:	Dispose of in accordance with federal, state and local environmental control regulations.

<b>Section 14. Transport Information (Non-mandatory)</b>						
US DOT	UN number:	UN1993	Class:	3	Packing Group:	II
UN proper shipping name:			Flammable Liquid, n.o.s. (Isopropanol, Aluminum Chloride)			
Packing group, if applicable:			II			
Environmental hazards (marine pollutant, etc...)			Not available			
Special transport precautions:			N/A			

<b>Section 15. Regulatory Information (Non-mandatory)</b>	
Specific safety, health, and environmental regulations:	N/A

<b>Section 16. Other information</b>	
Date of preparation or last revision:	September 11, 2018