






Safety Data Sheet

Section 1. Identification	
Product Identification and Item Numbers:	Aluminum Chloride in Alcohol Solution, 20% w/v (AC/20/1, AC/20/2, AC/20/PT)
Product Description:	A solution of Aluminum Chloride (hexahydrate) USP 20% w/v in anhydrous ethyl alcohol
Recommended use and restrictions on use:	N/A
Supplier:	Delasco 608 13 th Avenue Council Bluffs, IA 51501 1-712-323-3269 www.delasco.com questions@delasco.com
In Case of Emergency, Contact:	Chemtrec (24 hour) 1-800-424-9300

Section 2. Hazard(s) Identification	
Classification:	
Flammable Liquid (Category 2) Eye Irritant (Category 2) Skin Corrosion (Category 1B)	
Labeling:	
Hazard symbol(s):	<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  GHS02: flame </div> <div style="text-align: center;">  GHS06: skull and crossbones </div> <div style="text-align: center;">  GHS07: exclamation mark </div> <div style="text-align: center;">  GHS08: health hazard </div> <div style="text-align: center;">  GHS05: corrosive </div> </div>
Signal word:	Danger!
Hazard statements:	
H225: Highly flammable liquid and vapor. H315: Causes skin irritation. H319: Causes serious eye irritation. H311: Toxic in contact with skin. H301: Toxic if swallowed. H331: Toxic if inhaled. H370: Causes damage to organs	
Precautionary statements:	
P210: Keep away from heat/sparks/open flames/.../hot surfaces. ... No smoking. P233: Keep container tightly closed. P240: Ground/bond container and receiving equipment. P241: Use explosion-proof electrical/ventilating/lighting/.../ equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. 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. P370+P378: In case of fire: Use dry chemical, alcohol foam, all purpose AFFF, carbon dioxide or water spray for extinction. P264: Wash hands thoroughly after handling. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313: If eye irritation persists: Get medical advice/attention. P403+P235: Store in a well-ventilated place. Keep cool.	

Section 3. Composition/Information on Ingredients	
Chemical Name and Concentration:	Aluminum Chloride, Hexahydrate 20% w/v Ethanol, 80% w/v
Other Names, Common Names, Synonyms:	N/A
CAS Number, other unique identifiers:	Mixture: Ethanol CAS# 64-17-5 Aluminum Chloride, Hexahydrate CAS# 7784-13-6
Other classified impurities or stabilizers:	N/A
Other ingredients posing health hazards:	N/A
Concentration of other hazardous ingredients:	N/A

Section 4. First-aid Measures	
Inhalation exposure:	If a person breathes large amounts of this chemical, move the exposed person to fresh air at once. Other measures are usually unnecessary.
Skin exposure:	Flush the contaminated skin with water promptly. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin with water promptly. If irritation persists after washing, get medical attention.
Eye contact:	Immediately wash (irrigate) the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately.
Ingestion:	Do NOT induce vomiting unless directed to do so by medical personnel. Get medical attention immediately.

Section 5. Fire Fighting Measures	
Suitable / unsuitable extinguishing media:	SMALL FIRE: Dry chemical, CO2, water spray or alcohol-resistant foam. LARGE FIRE: Water spray, fog or alcohol-resistant foam. Do not use straight streams. Move containers from fire area if you can do it without risk. When heated to decomposition, toxic fumes of hydrogen chloride, and aluminum oxide may be emitted.
Specific hazards / combustion products:	HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. <ul style="list-style-type: none"> • Vapors may form explosive mixtures with air. • Vapors may travel to source of ignition and flash back. • Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). • Vapor explosion hazard indoors, outdoors or in sewers. • Runoff to sewer may create fire or explosion hazard. • Containers may explode when heated. • Many liquids are lighter than water.
Special protective equipment and precautions for fire-fighters:	CAUTION: Very low flash point: Use of water spray when fighting fire may be inefficient. <ul style="list-style-type: none"> • Wear positive pressure self-contained breathing apparatus (SCBA). • Structural firefighters' protective clothing will only provide limited protection. • Inhalation or contact with material may irritate or burn skin and eyes. • Fire may produce irritating, corrosive and/or toxic gases. • Vapors may cause dizziness or suffocation. • Runoff from fire control may cause pollution
NFPA Hazard Classification	Health – 2 Flammability – 3 Instability – 0 0-Minimal 1-Slight 2-Moderate 3-Serious 4-Severe

Section 6. Accidental Release Measures	
Personal precautions and protective equipment:	<ul style="list-style-type: none"> • ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). • All equipment used when handling the product must be grounded. • Do not touch or walk through spilled material. • Stop leak if you can do it without risk. • Prevent entry into waterways, sewers, basements or confined areas. • A vapor suppressing foam may be used to reduce vapors. • Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. • Use clean non-sparking tools to collect absorbed material.
Environmental Precautions:	Not available.
Containment / clean up methods:	<ul style="list-style-type: none"> • Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. • Use clean non-sparking tools to collect absorbed material.

Section 7. Handling and Storage	
Precautions for safe handling:	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. Remove all sources of ignition. All metal equipment must be grounded. Handle in accordance with good industrial hygiene and safety practices.
Conditions for safe storage:	Keep tightly closed, cool and away from flame. Protect containers against physical damage. Should not be stored with perchlorates, peroxides, chromic acid and nitric acid.
Incompatibilities to avoid:	Slightly reactive with oxidizing agents, reducing agents, metals, acids, alkalis. Should not be stored with perchlorates, peroxides, chromic acid and nitric acid.

Section 8. Exposure Controls and Personal Protection	
OSHA Permissible Exposure Limit (PEL):	1000 ppm (1,900 mg/m ³) TWA (Ethanol)
Threshold Limit Value (TLV):	1993-1994 ACGIH TLV: 1000 ppm (1,880 mg/m ³) TWA (Ethanol)
Other exposure limits:	NIOSH REL: 1000 ppm (1,900 mg/m ³) TWA (Ethanol) LEL: 3.3% (10% LEL: 3,300 ppm) (Ethanol) Original (SCP) IDLH: 15,000 ppm (Ethanol) Revised IDLH: 3,300 ppm [LEL] (Ethanol)
Engineering controls:	Use fume hood or other means of adequate ventilation.
Personal protective equipment:	<p>Respiratory Protection NIOSH/OSHA Recommendations:</p> <ul style="list-style-type: none"> • Up to 3300 ppm: (APF = 10) Any supplied-air respirator (APF = 50) Any self-contained breathing apparatus with a full facepiece • Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus • Escape: Any appropriate escape-type, self-contained breathing apparatus <p>Eye Protection Wear appropriate eye protection to prevent eye contact.</p> <p>Skin Protection Wear appropriate personal protective clothing to prevent skin contact. Immediately wash the skin when it becomes contaminated. Work clothing that becomes wet should be immediately removed due to its flammability hazard.</p>
Other personal protection measures:	Provide nearby eyewash station and safety shower.

Section 9. Physical and Chemical Properties	
Appearance (physical state, color, etc.):	Clear, colorless liquid.
Odor:	Strong ethanol odor.
Odor threshold:	Data not available
pH:	Acidic
Melting point / freezing point:	Data not available for this mixture.
Initial boiling point and boiling range:	Data not available for this mixture.
Flash point:	12°C (Ethanol)
Evaporation rate:	Data not available for this mixture.
Flammability	Data not available for this mixture.
Upper / lower flammability or explosive limits:	Lower explosion limit: 3.3% Upper explosion limit: 19% (Ethanol)
Vapor Pressure:	Data not available for this mixture.
Vapor density:	Data not available for this mixture.
Relative density:	Data not available for this mixture.
Solubility:	Very soluble in water.
Partition coefficient: n-octanol/water:	Data not available for this mixture.
Auto-ignition temperature:	363-426 °C / 685.4-798.8 °F (Ethanol)
Decomposition temperature:	Data not available for this mixture.
Viscosity:	Data not available for this mixture.

Section 10. Stability and Reactivity	
Chemical stability:	The product is stable.
Possibility of hazardous reactions:	Should not be stored with perchlorates, peroxides, chromic acid and nitric acid. Slightly reactive with oxidizing agents, reducing agents, metals, acids, alkalis.
Conditions to avoid (static, shock, vibration...)	Protect containers against physical damage, heat, ignition sources.
Incompatible materials:	Should not be stored with perchlorates, peroxides, chromic acid and nitric acid. Slightly reactive with oxidizing agents, reducing agents, metals, acids, alkalis.
Hazardous decomposition products:	Carbon monoxide. Carbon dioxide. When heated to decomposition it emits acrid smoke and irritating fumes (Ethanol). When heated to decomposition, toxic fumes of hydrogen chloride, and aluminum oxide may be emitted (Aluminum Chloride).

Section 11. Toxicological Information																																											
Routes of exposure:	Ingestion, inhalation, skin and/or eye contact.																																										
Acute Symptoms (acute):	<ul style="list-style-type: none"> Inhalation: Irritating to respiratory system. Eye Contact: Causes serious eye irritation. Moderate to severe eye irritation. Skin Contact: Mildly to moderately irritating to the skin. Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause gastritis. May cause loss of appetite. May cause flushed skin. May affect the cardiovascular system (change in heart rate). May affect the cardiovascular system (hypotension or hypertension, tachycardia, dysrhythmias). It may affect behavior/central nervous system (excitation, mild euphoria, excessive talking, fatigue, headache, dizziness, drowsiness, staggering gait, ataxia, hallucinations, slurred speech, amnesia, confusion, release of inhibitions, aggressive behavior, convulsions, coma). May affect respiration (dyspnea, respiratory depression). It may affect the brain. May affect liver. May affect the blood. May affect the endocrine system. It may affect the spleen. May affect urinary system (kidneys). 																																										
Symptoms (chronic): Chronic effects from short and long term exposure:	<ul style="list-style-type: none"> Ingestion: Prolonged or repeated ingestion may affect behavior/central nervous system, metabolism (cause anorexia, weight loss), the liver (fatty liver degeneration, cirrhosis of the liver), the cardiovascular system. Prolonged or repeated inhalation may affect the liver. Inhalation: Not available Skin: Prolonged or repeated skin contact may cause dermatitis, and dryness and cracking of the skin. Eyes: Not available. 																																										
Numerical measures of toxicity (e.g., acute toxicity estimates):	<p>Lethal concentration data (Ethanol):</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Reference</th> <th>LC₅₀ (ppm)</th> <th>LC_{Lo} (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>NPIRI 1974</td> <td>20,000</td> <td>-----</td> <td>10 hr</td> <td>54,200 ppm (2.71)</td> <td>5,420 ppm</td> </tr> <tr> <td>Mouse</td> <td>Tiunov et al. 1982</td> <td>20,363</td> <td>-----</td> <td>4 hr</td> <td>40,727 ppm (2.0)</td> <td>4,073 ppm</td> </tr> </tbody> </table> <p>Lethal dose data (Ethanol):</p> <table border="1"> <thead> <tr> <th>Species</th> <th>Reference</th> <th>Route</th> <th>LD₅₀ (mg/kg)</th> <th>LD_{Lo} (mg/kg)</th> <th>Adjusted LD</th> <th>Derived value</th> </tr> </thead> <tbody> <tr> <td>Mouse</td> <td>Savchenkov 1967</td> <td>oral</td> <td>3,450</td> <td>-----</td> <td>12,611 ppm</td> <td>1,261 ppm</td> </tr> <tr> <td>Rat</td> <td>Wiberg et al. 1970</td> <td>oral</td> <td>7,060</td> <td>-----</td> <td>25,807 ppm</td> <td>2,581 ppm</td> </tr> </tbody> </table> <p>Other animal data (Ethanol): RD₅₀ (mouse), 27,314 ppm [Alarie 1981].</p> <p>Other Data (Aluminum Chloride Hexahydrate):</p> <ul style="list-style-type: none"> ORAL (LD50): Acute: 3311 mg/kg [Rat]. 1990 mg/kg [Mouse]. 	Species	Reference	LC ₅₀ (ppm)	LC _{Lo} (ppm)	Time	Adjusted 0.5-hr LC (CF)	Derived value	Rat	NPIRI 1974	20,000	-----	10 hr	54,200 ppm (2.71)	5,420 ppm	Mouse	Tiunov et al. 1982	20,363	-----	4 hr	40,727 ppm (2.0)	4,073 ppm	Species	Reference	Route	LD ₅₀ (mg/kg)	LD _{Lo} (mg/kg)	Adjusted LD	Derived value	Mouse	Savchenkov 1967	oral	3,450	-----	12,611 ppm	1,261 ppm	Rat	Wiberg et al. 1970	oral	7,060	-----	25,807 ppm	2,581 ppm
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NTP carcinogen:	Not listed (Ethanol)																																										
EPA carcinogen:	Not available (Ethanol)																																										
ACGIH carcinogen:	A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans (Ethanol)																																										
IARC potential carcinogen:	Group 1 (Ethanol)																																										
OSHA carcinogen:	Present (Ethanol)																																										

Section 12. Ecological Information (Non-mandatory)	
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

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

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

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

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