Aluminum Chloride Solution for Sulfide
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 06/16/2014 Revision date: 09/28/2016 Supersedes: 06/16/2014 Version: 1.1

SECTION 1: Identification

1.1. Identification
Product form : Mixture
Product name : Aluminum Chloride Solution for Sulfide
Product code : LC10820

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : For laboratory and manufacturing use only

1.3. Details of the supplier of the safety data sheet
LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Skin corrosion/irritation Category 2 H315
Serious eye damage/eye irritation Category 2A H319
Specific target organ toxicity (single exposure) Category 3 H335
Hazardous to the aquatic environment - Acute Hazard Category 3 H402

Full text of H statements : see section 16

2.2. Label elements
GHS-US labeling
Hazard pictograms (GHS-US) : !

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H402 - Harmful to aquatic life

Precautionary statements (GHS-US) : P261 - Avoid breathing mist
P264 - Wash exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves, eye protection
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
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P337 + P313 - If eye irritation persists: Get medical advice/attention
P363 - Wash contaminated clothing before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations

If inhaled: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards
Other hazards not contributing to the : None under normal conditions.
Aluminum Chloride Solution for Sulfide  
Safety Data Sheet  
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

classification

<table>
<thead>
<tr>
<th>2.4. Unknown acute toxicity (GHS US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
</tr>
</tbody>
</table>

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
</table>
| Aluminum Chloride Hexahydrate| (CAS No) 7784-13-6 | 50 | Skin Irr. 2, H315  
|                             |                    |    | Eye Irr. 2A, H319  
|                             |                    |    | STOT SE 3, H335  
|                             |                    |    | Aquatic Acute 3, H402                              |
| Water                       | (CAS No) 7732-18-5 | 50 | Not classified                                    |

Full text of hazard classes and H-statements : see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact : Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

Symptoms/injuries after eye contact : Causes serious eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Safety glasses. Gloves.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.
Aluminum Chloride Solution for Sulfide
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing mist. Use only outdoors or in a well-ventilated area.

Hygiene measures: Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed.
Incompatible materials: Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th>Aluminum Chloride Hexahydrate (7784-13-6)</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water (7732-18-5)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.


Hand protection: Wear protective gloves.
Eye protection: Chemical goggles or safety glasses.
Skin and body protection: Wear suitable protective clothing.
Respiratory protection: Wear appropriate mask.
Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>None.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Aluminum Chloride Solution for Sulfide Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Relative vapor density at 20 °C: No data available
Relative density: No data available
Solubility: Soluble in water.
Log Pow: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials
Ammonia. Strong bases.

10.6. Hazardous decomposition products
Hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure: Skin and eye contact
Acute toxicity: Not classified

Aluminum Chloride Hexahydrate (7784-13-6)
LD50 oral rat: 3311 mg/kg
ATE US (oral): 3311.000 mg/kg body weight

Water (7732-18-5)
LD50 oral rat: ≥ 90000 mg/kg
ATE US (oral): 90000.000 mg/kg body weight

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): May cause respiratory irritation.
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified
Aluminum Chloride Solution for Sulfide Safety Data Sheet

Potential Adverse human health effects and symptoms
- Symptoms/injuries after inhalation: May cause respiratory irritation.
- Symptoms/injuries after skin contact: Causes skin irritation.
- Symptoms/injuries after eye contact: Causes serious eye irritation.

Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - water: Harmful to aquatic life.

<table>
<thead>
<tr>
<th>Aluminum Chloride Solution for Sulfide</th>
<th>LC50 fish 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54.2 mg/l</td>
</tr>
</tbody>
</table>

| Aluminum Chloride Hexahydrate (7784-13-6) | LC50 fish 1 | 27.1 mg/l |
|                                         | EC50 Daphnia 1 | 27.3 mg/l |

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Aluminum Chloride Solution for Sulfide</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

12.3. Bioaccumulative potential

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<th>Bioaccumulative potential</th>
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<tr>
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</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects

Effect on the global warming: No known effects from this product.

GWPmix comment: No known effects from this product.

Other information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

Transport document description: UN2581 Aluminum chloride, solution, 8, III

UN-No.(DOT): UN2581

Proper Shipping Name (DOT): Aluminum chloride, solution

Transport hazard class(es) (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT): III - Minor Danger
Hazard labels (DOT): 8 - Corrosive

DOT Packaging Non Bulk (49 CFR 173.xxx): 203
DOT Packaging Bulk (49 CFR 173.xxx): 241
DOT Special Provisions (49 CFR 172.102): IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31H21 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672)

T4 - 2.65 178.274(d)(2) Normal............. 178.275(d)(3)
TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx): 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 60 L

DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Other information: No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Aluminum Chloride Solution for Sulfide

SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Aluminum Chloride Hexahydrate (7784-13-6)

SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard

15.2. International regulations

CANADA

Aluminum Chloride Solution for Sulfide

WHMIS Classification: Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Aluminum Chloride Hexahydrate (7784-13-6)

WHMIS Classification: Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Water (7732-18-5)

WHMIS Classification: Uncontrolled product according to WHMIS classification criteria

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm.
Aluminum Chloride Solution for Sulfide

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 16: Other information

<table>
<thead>
<tr>
<th>Revision date</th>
<th>09/28/2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other information</td>
<td>None.</td>
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</table>

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>H315</th>
<th>Causes skin irritation</th>
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<td>H319</td>
<td>Causes serious eye irritation</td>
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<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H402</td>
<td>Harmful to aquatic life</td>
</tr>
</tbody>
</table>

NFPA health hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard: 0 - Materials that will not burn.

NFPA reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

HMIS III Rating

Health: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability: 0 Minimal Hazard - Materials that will not burn

Physical: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection: B

B - Safety glasses, Gloves

SDS US LabChem

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