# Aluminum Chloride Hexahydrate

## Safety Data Sheet

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

Date of issue: 09/27/2007  Revision date: 06/20/2013  Supersedes: 02/10/2011  Version: 1.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance name</td>
<td>Aluminum Chloride Hexahydrate</td>
</tr>
<tr>
<td>CAS No</td>
<td>7784-13-6</td>
</tr>
<tr>
<td>Product code</td>
<td>LC10810</td>
</tr>
<tr>
<td>Formula</td>
<td>AlCl3·6H2O</td>
</tr>
</tbody>
</table>

#### 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
16063 Zelienople, PA - 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: Hazards identification

#### 2.1. Classification of the substance or mixture

GHS-US classification
- Skin Irrit. 2 H315
- Eye Irrit. 2A H319
- STOT SE 3 H335
- Aquatic Acute 3 H402

#### 2.2. Label elements

GHS-US labelling
- Hazard pictograms (GHS-US):
  - GHS07

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 dust, fume
- 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
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water
- P304+P340 - IF INHALED: Remove person to fresh air and keep 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/doctor/.../if you feel unwell
- P332+P313 - If skin irritation occurs: Get medical advice/attention
- P337+P313 - If eye irritation persists: Get medical advice/attention
- P362 - Take off contaminated clothing
- 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

#### 2.3. Other hazards

Other hazards not contributing to the classification: None.

#### 2.4. Unknown acute toxicity (GHS US)

No data available
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SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Chloride Hexahydrate (Main constituent)</td>
<td>(CAS No) 7784-13-6</td>
<td>100</td>
<td>Skin Irrit. 2, H315, Eye Irrit. 2A, H319, STOT SE 3, H335, Aquatic Acute 3, H402</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture
Not applicable

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 to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/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.
Chronic symptoms: No specific information available.

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
Fire hazard: Not flammable.
Explosion hazard: Not applicable.
Reactivity: Thermal decomposition generates: Corrosive vapours.

5.3. Advice for firefighters
Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information: Not applicable.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: Use chemically protective clothing.

6.1.1. For non-emergency personnel
Protective equipment: Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.
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.
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6.3. Methods and material for containment and cleaning up
For containment : Take account of toxic/corrosive precipitation water.
Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimize generation of dust. 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 vapour. Avoid breathing dust, fume. 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 only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container tightly closed.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.
Packaging materials : Do not store in corrodbale metal.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls
Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.
Personal protective equipment : Avoid all unnecessary exposure.
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.
Environmental exposure controls : Avoid release to the environment.
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
Physical state : Solid
Molecular mass : 241.43 g/mol
Colour : Colourless.
Odour : characteristic.
Odour threshold : No data available
pH : No data available
pH solution : 2.5 - 3.5 °C
Relative evaporation rate (butylacetate=1) : No data available
Melting point : 100 °C
Freezing point : No data available
Boiling point : 182 °C
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : 1 hPa 100°C
Relative vapour density at 20 °C : No data available
Relative density : No data available
Density : 2.398 g/cm³
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Water: 111 g/100ml
Ethanol: 25 g/100ml

Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available.
Oxidising properties: No data available.

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Thermal decomposition generates: Corrosive vapours.

10.2. Chemical stability
Hygroscopic.

10.3. Possibility of hazardous reactions
Not established.

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

10.5. Incompatible materials
Strong oxidizers. Strong bases.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Aluminum Chloride Hexahydrate (7784-13-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>3311 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classifiedBased on available data, the classification criteria are not met
Carcinogenicity: Not classified
Reproductive toxicity: Not classifiedBased on available data, the classification criteria are not met
Specific target organ toxicity (single exposure): May cause respiratory irritation.
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classifiedBased on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met
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.
Chronic symptoms: No specific information available.

SECTION 12: Ecological information

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

<table>
<thead>
<tr>
<th>Aluminum Chloride Hexahydrate (7784-13-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>27.1 mg/l</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>27.3 mg/l</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Aluminum Chloride Hexahydrate (7784-13-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Aluminum Chloride Hexahydrate (7784-13-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

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

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

<table>
<thead>
<tr>
<th>UN-No.(DOT)</th>
<th>DOT NA no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1726</td>
<td>UN1726</td>
</tr>
</tbody>
</table>

14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>DOT Proper Shipping Name</th>
<th>Department of Transportation (DOT) Hazard Classes</th>
<th>Hazard labels (DOT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum chloride, anhydrous</td>
<td>8 - Class 8 - Corrosive material 49 CFR 173.136</td>
<td>8 - Corrosive substances</td>
</tr>
</tbody>
</table>

Packing group (DOT): II - Medium Danger

<table>
<thead>
<tr>
<th>DOT Special Provisions (49 CFR 172.102)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).</td>
</tr>
<tr>
<td>IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.</td>
</tr>
<tr>
<td>IP4 - Flexible, fiberboard or wooden IBCs must be silt-proof and water-resistant or be fitted with a silt-proof and water-resistant liner.</td>
</tr>
<tr>
<td>T3 - 2.65 178.274(d)(2) Normal............. 178.275(d)(2)</td>
</tr>
<tr>
<td>TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.</td>
</tr>
</tbody>
</table>

DOT Packaging Exceptions (49 CFR 173.xxx): 154

DOT Packaging Non Bulk (49 CFR 173.xxx): 212

DOT Packaging Bulk (49 CFR 173.xxx): 240

14.3. Additional information

Other information: No supplementary information available.

Overland transport

No additional information available.
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Transport by sea
DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 40 - Stow “clear of living quarters”

Air transport
DOT Quantity Limitations Passenger aircraft/rail : 15 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

SECTION 15: Regulatory information

15.1. US Federal regulations
Aluminum Chloride Hexahydrate (7784-13-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
SARA Section 311/312 Hazard Classes Immediate (acute) health hazard

15.2. International regulations
CANADA
Aluminum Chloride Hexahydrate (7784-13-6)
WHMIS Classification | Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations
No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC or 1999/45/EC
Not classified

15.2.2. National regulations
No additional information available

15.3. US State regulations
Aluminum Chloride Hexahydrate(7784-13-6)
State or local regulations
U.S. - Minnesota - Chemicals of High Concern
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information
Indication of changes : Revision - See : *.
Other information : None.

Full text of H-phrases: see section 16:

Aquatic Acute 3 | Hazardous to the aquatic environment — AcuteHazard, Category 3
Eye Irrit. 2A | Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2 | Skin corrosion/irritation, Category 2
STOT SE 3 | Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H315 | Causes skin irritation
H319 | Causes serious eye irritation
H335 | May cause respiratory irritation
H402 | Harmful to aquatic life

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.

06/20/2013 EN (English)
铝氯化物六水合物

安全数据表

根据联邦登记册 / 卷 77，第 58 号 / 星期一，3 月 26 日，2012 年 / 规则和规定

NFPA 反应性：0 - 通常在暴露条件下稳定，甚至在火灾暴露条件下，也不与水反应。

HMIS III 标识

健康：2 - 中等危害 - 暂时或轻微的伤害可能发生

可燃性：0 - 极小危害

物理：0 - 极小危害

个人防护：E

SDS US (GHS HazCom 2012)

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