GPS SAFETY SUMMARY
ALUMINIUM CHLORIDE

1. General Statement

Anhydrous aluminium chloride is an odorless inorganic solid, which is usually white to gray in color or sometimes yellow due to traces of iron chloride.

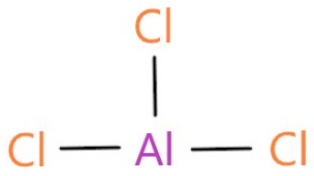
Physical State : Powder (Size up to 2 mm) / Granules (Size from 2 mm to 10 mm)
Odour : Pungent
Sublimation Point : (1.1325 mbar) 181.20C
Boiling temperature : Not applicable, Sublimes Density (g/ml): 2.44
Bulk Density : 1.1 to 1.2 gms. / cc
Solubility in water : 450 gms/litre at 200C in large quantity of water(Decomposes with violent reaction in small quantity of water)

2. Chemical Identity

Reacts violently with water. The possibility of reaction with other substances cannot be excluded. It decomposes to form hazardous product hydrochloric acid.

Stability : Stable in dry cool atmosphere. Heat will contribute to instability.
Sensitivity : Sensitive to moisture.
IUPAC Name : Aluminium Trichloride
CAS Number : 7446 – 70 – 0
Formula : AlCl3
Molecular Weight: 133.34 g/mol
HS Code : 28273200
Incompatibility (Materials to Avoid) : Water, Organic nitro- compounds, Ethylene oxide.
pH Value (100 gms/litre): 2.4

Structure :



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3. Use and application

- AlCl3 is primarily used as a catalyst during Friedel Crafts reaction and as a Lewis Acid, making it a widely used compound in the chemical industry
- **Dyes & Pigments**
- **Pharmaceuticals**
- **Flavors & Fragrances**
- **Inorganic Chemicals:** Used as direct raw material for manufacturing Fumed Alumina and Titanium Dioxide
- **Hydrocarbon Resins**
- **Others:** Used in components of dental cement, antacid, and food additives

4. Physical / Chemical properties

Conditions under which the product is chemically unstable:

- Stable if kept dry and protected from atmospheric moisture.
- Stable at normal temperature and pressures but may decompose on prolonged storage creating a build-up of pressure.
- If contaminated with moisture, acid will be formed that may react with the steel drum resulting in formation of flammable hydrogen gas.
- Negligible fire hazard when exposed to heat or flame.
- Sublimation occurs at 181 degrees C.

Conditions of reactivity: Reacts violently with water with releasing toxic and corrosive hydrogen chloride with sufficient heat and pressure generated to rupture containers

Incompatibilities :

- Water
- Alkali : May react explosively
- Alkenes: violent, highly exothermic polymerization possible.
- Allyl chloride : violent polymerization possible. Ethylene oxide: violent polymerization possible.
- Metals : may corrode in the presence of moisture.
- Organic nitro compounds : vigorous reaction.
- Oxygen difluoride : explodes.
- Potassium : forms impact sensitive mixture.
- Sodium : forms impact sensitive mixture.
- Hazardous Decomposition Products. Hydrogen chloride, aluminum oxide, aluminum hydroxide., Hazardous Polymerization Possible.

5. Health Effects

It causes burns in presence of moisture / sweat.
Primary Routes of Exposure
Eyes / Inhalation / Skin Eyes: Causes severe deep burns.
Inhalation : Causes burning sensation, cough, hard or shortness of breathing, sore throat.
Skin : Causes burns.
Ingestion : Causes nausea/abdominal pain/vomitting, burning sensation, shock or collapse.

6. Environmental Effects

Adverse ecological effects cannot be excluded in the event of improper handling or disposal.
Do not allow to contaminate drinking water supplies, wastewater, or soil!
Harmful for aquatic organisms

Effect Assessment	Result
Aquatic Toxicity	The substance is very toxic to the aquatic environment.

7. Exposure

7.1 Human health

Eye effects : Material is irritating and corrosive to eyes.
Skin effects : The material is irritating and corrosive to skin; may cause pain and second degree burns after a few minutes of contact if the skin is wet or damp.

Acute oral effects: Moderately toxic by ingestion and causes severe burns of the mouth.

Acute inhalation effects: Material is a severe respiratory irritant when inhaled.

Chronic effects : Chronic health effects from expected possible exposure routes are not reported or expected.

7.2 Environment

The manufacture of chlorine takes place in closed systems, as are the uses identified (apart from biocidal uses). No aqueous or gaseous effluents are emitted directly into the environment without passing through a treatment step, typically site water treatment for aqueous effluents and scrubbing gas effluents with sodium hydroxide to remove any unreacted chlorine. Any substance released is rapidly destroyed upon contact with organic material. It should be noted that there is also low levels of chlorine gas released from natural processes, such as chlorine reduction on coastlines.

Based on the risk assessment, the use of chlorine is safe under conditions recommended in the extended safety data sheet.

8. Risk Management recommendations

Human health measures		
Organizational	A basic standard of occupational hygiene is recommended. Ensure operatives are well informed of the hazards and trained to minimise exposures. Ensure regular inspection and maintenance of equipments and machines. Handle and store according to the indications of the Safety Data Sheet.	
Protection	**Eye/Face protection:**	Safety glasses. In case of spattering: safety glasses, fae-shield.
	Skin protection:	At the workplace: safety shoes, combination with delayed penetration Intervention at incident: complete chemical protection suit.
	Hand protection:	Neoprene gloves.
	Respiratory protection:	High concentration or prolonged activity: self contained breathing apparatus. In the case of vapor formation: use a respirator with an approved filter (recommended cartridge: B2 type).
Engineering controls	Use product only in closed system. Provide appropriate local exhaust ventilation at machinery. Provide sufficient air exchange and/or exhaust in work rooms. Frequently monitor and control the working atmosphere. Ensure that eyewash stations and safety showers are close to workstation locations. Ensure that self-contained breathing apparatus are located nearby.	
Environment protective measures		
Product must not be released into water without pre-treatment. Neutralize wastewater before release.		

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information

U.S. Federal Regulations, TSCA 8(b) Inventory Status: TSCA Listed., TSCA 5(a)(2)SNUR: Not applicable, RCRA Waste: Yes – Reactive (D002), 40CFR Part 302 TPQ/RQ: No 40CFR Part 311/312 Hazard Classes: Acute (X) Chronic, Reactive (X) Fire Sudden Release of Pressure ( ) 40CFR Part 313 TRI Chemical: No, Section 112b Clean Air Act (Hazardous Air Pollutant) – No, 40CFR Part 68.130 Table 1 (Regulated Substance) – No

SUBSTANCES – WATER-REACTIVE – CORROSVE POTENTIAL HAZARDS HEALTH TOXIC: Inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death. Fire will produce irritating, corrosive and/or toxic gases. Reaction with water may generate much heat, which will increase the concentration of fumes in the air. Contact with molten substance may cause severe burns to skin and eyes. Runoff from fire control or dilution may cause pollution.

9.2 Classification and labeling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008, implementation of the GHS in the European Union.

RC Code – 6	Product Safety and Stewardship

Classification

OSHA Hazard Information:

OSHA Health Hazard Classification:

Carcinogen.

NTP……..: No

IARC……...: No

OSHA……..: No

Target Organ Effects. (Chronic effects)

Hepatotoxin……..: No

Nephrotoxin……..: No

Lungs……....: Yes

Reproductive……...: No

Cutaneous……: Yes

Eye……: No

Blood / Hematopoietic Systems…….: No

Other Hazards.

Corrosive……..: Yes

Highly Toxic……..…: No

Irritant……...: Yes

Sensitizer……..…..: No

Toxic……..: Yes

Signal Word

Danger

Pictogram

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