

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product Identifier

**Chemical Name** Aluminum Chloride

**Catalogue #** A575535

### 1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

**Product Uses** To be used only for scientific research and development. Not for use in humans or animals.

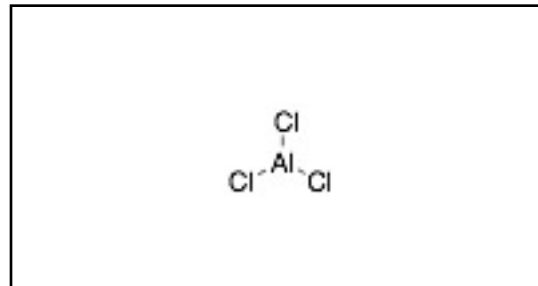
### 1.3 Details of the Supplier of the Safety Data Sheet

**Company** Toronto Research Chemicals  
2 Brisbane Road  
Toronto, ON M3J 2J8  
CANADA

**Telephone** +14166659696

**FAX** +14166654439

**Email** orders@trc-canada.com



### 1.4 Emergency Telephone Number

**Emergency#** +1(416) 665-9696 between 0800-1700 (GMT-5)

## 2. HAZARDS IDENTIFICATION

### WHMIS Classification (Canada)

E Corrosive Material

### WHMIS Symbols (Canada)



### 2.1/2.2 Classification of the Substance or Mixture and Label Elements

#### GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Skin Corrosion (Category 1B)

Eye Damage/Irritation (Category 1)

Hazardous to the Aquatic Environment, Acute Hazard (Category 3)

#### GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

**Signal Word** Danger



#### GHS Hazard Statements

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H402 Harmful to aquatic life.

#### GHS Precautionary Statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray

P264 Wash hands thoroughly after handling.

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301/P330/P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303/P361/P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304/P340	
P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305/P351/P338	Immediately call a POISON CENTER or doctor/physician
P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician

### **2.3 Unclassified Hazards/Hazards Not Otherwise Classified**

No data available.

## **3. COMPOSITION/INFORMATION ON INGREDIENTS**

### **3.1 Substances**

**Molecular Formula:** AlCl<sub>3</sub>

**Molecular Weight:** 133.34

**CAS Registry #:** 7446-70-0

**EC#:** 231-208-1

#### **Synonyms**

Aluminum(III) Chloride; Hemogin L; Hemostop; Lutan FN; NSC 143015; NSC 143016;  
TK Flock; Takibine 100; Trichloroaluminum; Aluminium Chloride; Aluminium Trichloride; AlCl<sub>3</sub>

### **3.2 Mixtures**

Not a mixture.

## **4. FIRST AID MEASURES**

### **4.1 Description of First Aid Measures**

#### **General Advice**

If medical attention is required, show this safety data sheet to the doctor.

#### **If Inhaled**

If inhaled, move casualty to fresh air. If not breathing, give artificial respiration and consult a physician.

#### **In Case of Skin Contact**

Remove contaminated clothing and shoes. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### **In Case of Eye Contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### **If Swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

### **4.2 Most Important Symptoms and Effects, Both Acute and Delayed**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, prolonged or repeated exposure can cause damage to the lungs.

### **4.3 Indication of any Immediate Medical Attention and Special Treatment Needed**

No data available.

## **5. FIREFIGHTING MEASURES**

### **5.1 Extinguishing Media**

Dry powder

## **5.2 Special Hazards Arising from the Substance or Mixture**

Aluminum oxides, Hydrogen chloride

### **Conditions of flammability**

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No Smoking.

### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

## **6. ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal Precautions, Protective Equipment and Emergency Procedures**

Use recommended personal protective equipment (see Section 8). Adequate ventilation must be provided to ensure vapours or mists are not inhaled. Vapours are heavier than air and may accumulate in low areas. All sources of ignition, including sources of static discharge, must be removed from area.

### **6.2 Environmental Precautions**

Material should not be allowed to enter the environment. Prevent further spillage or discharge into drains, if safe to do so.

### **6.3 Methods and Materials for Containment and Cleaning Up**

Contain the spill and then collect using non-combustible absorbent material (such as clay, diatomaceous earth, vermiculite or other appropriate material). Place material in a suitable, sealable container and then dispose according to local/national regulations and guidance (see Section 13).

### **6.4 Reference to Other Sections**

For protective equipment, refer to Section 8. For disposal, see Section 13.

## **7. HANDLING AND STORAGE**

### **7.1 Precautions for Safe Handling**

Avoid contact with skin and eyes. Ventilation and proper handling are to be used to prevent the formation of vapours and mists. Remove all sources of ignition and take precautionary measures to prevent the buildup of electrostatic discharge (ground and bond containers as appropriate). No smoking, eating or drinking around this material. Wash hands after use.

### **7.2 Conditions for Safe Storage, Including any Incompatibilities**

Ensure container is kept securely closed before and after use. Keep in a well ventilated area and do not store with strong oxidizers or other incompatible materials (see Section 10).

Storage conditions: Hygroscopic, Room Temperature, under inert atmosphere

### **7.3 Specific End Uses**

For scientific research and development only. Not for use in humans or animals.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Control Parameters**

#### **Components with workplace control parameters**

<b>Components</b>	<b>CAS-No.</b>	<b>Value</b>	<b>Control parameters</b>	<b>Basis</b>
Aluminium chloride anhydrous	7446-70-0	TWA	2.000000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
<b>Remarks</b>	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		TWAEV	2.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

### **8.2 Exposure Controls**

#### **Appropriate Engineering Controls**

A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

#### **Personal Protective Equipment**

All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

### Eye/Face Protection

Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

### Skin Protection

Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as "chemical resistant" by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.

Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.  
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated "chemical resistant" as per EN 734 with the resistance codes corresponding to the anticipated use of the material.

Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.  
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

### Body Protection

Fire resistant (Nomex) coveralls or chemical-resistant bodysuit (laminated Tychem SL or equivalent).

### Respiratory Protection

Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on Basic Physical and Chemical Properties

#### A) Appearance

Off-White to Pale Yellow Solid

#### C) Odour Threshold

No data available

#### E) Melting Point/Freezing Point

No Data Available

#### G) Flash point

No data available

#### I) Flammability (Solid/Gas)

No data available

#### K) Vapour Pressure

No data available

#### M) Relative Density

No data available

#### O) Partition Coefficient: n-octanol/water

No data available

#### Q) Decomposition Temperature

No data available

#### S) Explosive Properties

No data available

#### B) Odour

No data available

#### D) pH

No data available

#### F) Initial Boiling Point/Boiling Range

No data available

#### H) Evaporation Rate

No data available

#### J) Upper/Lower Flammability/Explosive Limits

No data available

#### L) Vapour Density

No data available

#### N) Solubility

No Data Available

#### P) Auto-Ignition Temperature

No data available

#### R) Viscosity

No data available

#### T) Oxidizing Properties

No data available

### 9.2 Other Information

no data available

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available.

### 10.2 Chemical Stability

Stable under recommended storage conditions.

### 10.3 Possibility of Hazardous Reactions

Reacts violently with water.

### 10.4 Conditions to Avoid

Exposure to moisture.

### 10.5 Incompatible Materials

Strong oxidizing agents, Alcohols, Mixtures of nitrobenzene and aluminum chloride are thermally unstable and may lead to explosive decomposition due to a multi-step decomposition reaction occurring above 90 degrees C, which self-accelerates with high exothermicity producing azo- and azoxypolymers, Water.

### 10.6 Hazardous Decomposition Products

In the event of fire: See section 5. Other decomposition products: No data available.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on Toxicological Effects

#### A) Acute Toxicity

Oral LD50: Rat - 3,450 mg/kg

Inhalation LC50: No data available.

Dermal LD50: No data available.

#### B) Skin Corrosion/Irritation

No data available

#### C) Serious Eye Damage/Irritation

Corrosive - causes skin and eye burns. May also cause respiratory tract damage.

#### D) Respiratory or Skin Sensitization

No data available

#### E) Germ Cell Mutagenicity

No data available

#### F) Carcinogenicity

No data available

#### G) Reproductive Toxicity/Teratogenicity

No data available

#### H) Single Target Organ Toxicity - Single Exposure

No data available

#### I) Single Target Organ Toxicity - Repeated Exposure

No data available

#### J) Aspiration Hazard

No data available

#### K) Potential Health Effects and Routes of Exposure

##### Inhalation

May be harmful if inhaled. Material is extremely destructive to the mucous membranes and respiratory tract.

##### Ingestion

May be harmful if swallowed.

##### Skin

May be harmful if absorbed through skin. Causes skin burns.

##### Eyes

Causes severe eye burns and possible permanent eye damage.

#### L) Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, prolonged or repeated exposure can cause damage to the lungs.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been

thoroughly investigated.

### **M) Additional Information**

RTECS: BD0525000

## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

#### **Toxicity to fish:**

static test LC50 - Salmo gairdneri - 36.6 mg/l - 96 h

#### **Toxicity to daphnia and other aquatic invertebrates:**

static test EC50 - Daphnia magna (Water flea) - 27.3 mg/l - 48 h

#### **Toxicity to algae:**

EC50 - Pseudokirchneriella subcapitata (green algae) - 0.57 mg/l - 96 h

### **12.2 Persistence and Degradability**

No data available.

### **12.3 Bioaccumulative Potential**

No data available.

### **12.4 Mobility in Soil**

No data available.

### **12.5 Results of PBT and vPvB Assessment**

No data available.

### **12.6 Other Adverse Effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste Treatment Methods**

#### **A) Product**

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

#### **B) Contaminated Packaging**

Dispose of as above.

#### **C) Other Considerations**

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

## **14. TRANSPORT INFORMATION**

### **14.1 UN Number**

DOT (US): UN1726

IATA: UN1726

IMDG: UN1726

ADR/RID: UN1726

### **14.2 UN Proper Shipping Name**

DOT (US)/IATA:

Aluminium chloride, anhydrous

IMDG/ARD/RID:

ALUMINIUM CHLORIDE, ANHYDROUS

### **14.3 Transport Hazard Class(es)**

DOT (US): 8

IATA: 8

IMDG: 8

ADR/RID: 8

### **14.4 Packing Group**

DOT (US): II

IATA: II

IMDG: II

ADR/RID: II

### **14.5 Environmental Hazards**

DOT (US): None

IATA: None

IMDG: None

ADR/RID: None

### **14.6 Special Precautions for User**

None

## **15. REGULATORY INFORMATION**

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

### **15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**

#### **A) Canada**

**DSL/NDSL Status:** This product or a component of this product is registered on the Canadian DSL/NDSL.

#### **B) United States**

**TSCA Status:** This product or a component is listed on the US EPA TSCA.

**C) European Union**

**ECHA Status:** This product or a component is registered with the EU ECHA.

**15.2 Chemical Safety Assessment**

No data available

**16. OTHER INFORMATION**

**16.1 Revision History**

Original Publication Date: 2/19/2019

**16.2 List of Abbreviations**

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

**16.3 Further Information**

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.