

## SAFETY DATA SHEET

Creation Date 28-July-2009

Revision Date 26-December-2021

Revision Number 6

### 1. Identification

**Product Name** Ethylaluminium dichloride, 1.8M solution in toluene

**Cat No. :** AC428040000; AC428041000; AC428048000

**Synonyms** No information available

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

**Importer/Distributor**  
Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Manufacturer**  
Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

|  |              |                  |
|--|--------------|------------------|
| <b>Flammable liquids</b>   | Category 2   |                  |
| <b>Substances/mixtures which, in contact with water, emit flammable gases</b>          | Category 1   | Gas(es) = Ethane |
| <b>Pyrophoric liquids</b>  | Category 1   |                  |
| <b>Skin Corrosion/Irritation</b>   | Category 1 A |                  |
| <b>Serious Eye Damage/Eye Irritation</b>   | Category 1   |                  |
| <b>Reproductive Toxicity</b>   | Category 2   |                  |
| <b>Specific target organ toxicity (single exposure)</b>                                | Category 3   |                  |
| Target Organs - Respiratory system, Central nervous system (CNS).                      |              |                  |
| <b>Specific target organ toxicity - (repeated exposure)</b>                            | Category 2   |                  |
| Target Organs - Kidney, Liver, Heart, spleen, Blood, Ears, Neurological effects, Eyes. |              |                  |
| <b>Aspiration Toxicity</b>   | Category 1   |                  |
| <b>Physical Hazards Not Otherwise Classified</b>                                       | Category 1   |                  |
| Reacts violently with water  |              |                  |

**Label Elements****Signal Word**

Danger

**Hazard Statements**

Highly flammable liquid and vapor  
In contact with water releases flammable gases which may ignite spontaneously  
Catches fire spontaneously if exposed to air  
May be fatal if swallowed and enters airways  
Causes severe skin burns and eye damage  
May cause respiratory irritation  
May cause drowsiness and dizziness  
Suspected of damaging the unborn child  
May cause damage to organs through prolonged or repeated exposure  
Reacts violently with water

**Precautionary Statements****Prevention**

Do not allow contact with water  
Keep container tightly closed  
Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Do not allow contact with air  
Handle under inert gas. Protect from moisture  
Ground/bond container and receiving equipment  
Use only non-sparking tools  
Take precautionary measures against static discharges  
Do not breathe dust/fumes/gas/mist/vapours/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Use only outdoors or in a well-ventilated area  
Wear protective gloves/protective clothing/eye protection/face protection

**Response**

IF ON SKIN: Immerse in cool water/wrap in wet bandages  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
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/doctor  
Rinse mouth  
Do NOT induce vomiting  
Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages  
Wash contaminated clothing before reuse  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed  
Store contents under inert gas  
Store in a dry place. Store in a closed container

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

| Component                 | CAS-No   | Weight % |
|---------------------------|----------|----------|
| Toluene                   | 108-88-3 | 73-90    |
| Ethylaluminium dichloride | 563-43-9 | 10-27    |

### 4. First-aid measures

|  |   |
|--|---|
| <b>Eye Contact</b>                     | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.   |
| <b>Skin Contact</b>                    | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.   |
| <b>Inhalation</b>                      | Remove to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. If not breathing, give artificial respiration. Risk of serious damage to the lungs (by aspiration).   |
| <b>Ingestion</b>                       | Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.  |
| <b>Most important symptoms/effects</b> | Difficulty in breathing. Causes burns by all exposure routes. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting; Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated; Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |
| <b>Notes to Physician</b>              | Treat symptomatically   |

### 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | Dry chemical, soda ash, lime or sand. approved class D extinguishers. Water mist may be used to cool closed containers. |
| <b>Unsuitable Extinguishing Media</b>   | Do not use water or foam  |
| <b>Flash Point</b>                      | 4 °C / 39.2 °F  |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | No information available  |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | No data available   |
| <b>Lower</b>                            | No data available   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

#### Specific Hazards Arising from the Chemical

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Reacts violently with water.

#### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride gas. Ethane.

#### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**Health  
3Flammability  
4Instability  
2Physical hazards  
W**6. Accidental release measures****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.

**Environmental Precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water.

**7. Handling and storage****Handling**

Use only under a chemical fume hood. Handle under an inert atmosphere. Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Avoid prolonged or repeated contact with skin. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

**Storage.**

Flammables area. Store under an inert atmosphere. Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Keep away from water or moist air. Incompatible Materials. Strong oxidizing agents.

**8. Exposure controls / personal protection****Exposure Guidelines**

| Component | Alberta   | British Columbia | Ontario TWAEV | Quebec  | ACGIH TLV   | OSHA PEL   | NIOSH IDLH  |
|-----------|---|------------------|---------------|---|-------------|--|---|
| Toluene   | TWA: 50 ppm<br>TWA: 188 mg/m <sup>3</sup><br>Skin | TWA: 20 ppm      | TWA: 20 ppm   | TWA: 50 ppm<br>TWA: 188 mg/m <sup>3</sup><br>Skin | TWA: 20 ppm | (Vacated) TWA: 100 ppm<br>(Vacated) TWA: 375 mg/m <sup>3</sup><br>Ceiling: 300 ppm<br>(Vacated) STEL: 150 ppm<br>(Vacated) STEL: 560 mg/m <sup>3</sup><br>TWA: 200 ppm | IDLH: 500 ppm<br>TWA: 100 ppm<br>TWA: 375 mg/m <sup>3</sup><br>STEL: 150 ppm<br>STEL: 560 mg/m <sup>3</sup> |

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures**

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** Goggles  
**Hand Protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

| Glove material              | Breakthrough time                 | Glove thickness | Glove comments         |
|-----------------------------|-----------------------------------|-----------------|------------------------|
| Nitrile rubber<br>Viton (R) | See manufacturers recommendations | -               | Splash protection only |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly  
**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

#### Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

#### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

## 9. Physical and chemical properties

|   |                          |
|---|--------------------------|
| <b>Physical State</b>                         | Liquid                   |
| <b>Appearance</b>                             | Tan                      |
| <b>Odor</b>                                   | No information available |
| <b>Odor Threshold</b>                         | No information available |
| <b>pH</b>                                     | No information available |
| <b>Melting Point/Range</b>                    | No data available        |
| <b>Boiling Point/Range</b>                    | Not applicable           |
| <b>Flash Point</b>                            | 4 °C / 39.2 °F           |
| <b>Evaporation Rate</b>                       | No information available |
| <b>Flammability (solid,gas)</b>               | Not applicable           |
| <b>Flammability or explosive limits</b>       |                          |
| <b>Upper</b>                                  | No data available        |
| <b>Lower</b>                                  | No data available        |
| <b>Vapor Pressure</b>                         | No information available |
| <b>Vapor Density</b>                          | No information available |
| <b>Specific Gravity</b>                       | 0.934                    |
| <b>Solubility</b>                             | No information available |
| <b>Partition coefficient; n-octanol/water</b> | No data available        |
| <b>Autoignition Temperature</b>               | No information available |
| <b>Decomposition Temperature</b>              | No information available |
| <b>Viscosity</b>                              | No information available |
| <b>Molecular Formula</b>                      | C2 H5 Al Cl2             |
| <b>Molecular Weight</b>                       | 126.95                   |

## 10. Stability and reactivity

**Reactive Hazard** Yes  
**Stability** Moisture sensitive. Reacts violently with water.

|   |  |
|---|--|
| <b>Conditions to Avoid</b>              | Incompatible products. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water. |
| <b>Incompatible Materials</b>           | Strong oxidizing agents  |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Hydrogen chloride gas, Ethane                                   |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.   |
| <b>Hazardous Reactions</b>              | Reacts violently with water.   |

## 11. Toxicological information

### Acute Toxicity

#### Product Information

##### Oral LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### Dermal LD50

Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

##### Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

#### Component Information

| Component | LD50 Oral            | LD50 Dermal                   | LC50 Inhalation       |
|-----------|----------------------|-------------------------------|-----------------------|
| Toluene   | > 5000 mg/kg ( Rat ) | LD50 = 12000 mg/kg ( Rabbit ) | 26700 ppm ( Rat ) 1 h |

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Causes severe burns by all exposure routes

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component                 | CAS-No   | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|---------------------------|----------|------------|------------|------------|------------|------------|
| Toluene                   | 108-88-3 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ethylaluminium dichloride | 563-43-9 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system Central nervous system (CNS)

**STOT - repeated exposure** Kidney Liver Heart spleen Blood Ears Neurological effects Eyes

**Aspiration hazard** Category 1

**Symptoms / effects, both acute and delayed** Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

| Component | Freshwater Algae   | Freshwater Fish  | Microtox                | Water Flea   |
|-----------|--|--|-------------------------|--|
| Toluene   | EC50: = 12.5 mg/L, 72h static (Pseudokirchneriella subcapitata)<br>EC50: > 433 mg/L, 96h (Pseudokirchneriella subcapitata) | 50-70 mg/L LC50 96 h<br>5-7 mg/L LC50 96 h<br>15-19 mg/L LC50 96 h<br>28 mg/L LC50 96 h<br>12 mg/L LC50 96 h | EC50 = 19.7 mg/L 30 min | EC50: = 11.5 mg/L, 48h (Daphnia magna)<br>EC50: 5.46 - 9.83 mg/L, 48h Static (Daphnia magna) |

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** .

| Component | log Pow |
|-----------|---------|
| Toluene   | 2.7     |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component          | RCRA - U Series Wastes | RCRA - P Series Wastes |
|--------------------|------------------------|------------------------|
| Toluene - 108-88-3 | U220                   | -                      |

## 14. Transport information

### DOT

UN-No UN3399  
 Proper Shipping Name Organometallic substance, liquid, water-reactive, flammable  
 Technical Name Toluene  
 Hazard Class 4.3  
 Packing Group I

### TDG

UN-No UN3399  
 Proper Shipping Name Organometallic substance, liquid, water-reactive, flammable  
 Hazard Class 4.3  
 Subsidiary Hazard Class 3  
 Packing Group I

### IATA

UN-No UN3399  
 Proper Shipping Name Organometallic substance, liquid, water-reactive, flammable  
 Hazard Class 4.3  
 Subsidiary Hazard Class 3  
 Packing Group I

### IMDG/IMO

UN-No UN3399  
 Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE  
 Hazard Class 4.3  
 Subsidiary Hazard Class 3  
 Packing Group I

## 15. Regulatory information

**International Inventories**

| Component                 | CAS-No   | DSL | NDSL | TSCA | TSCA Inventory notification - Active-Inactive | EINECS    | ELINCS | NLP |
|---------------------------|----------|-----|------|------|---|-----------|--------|-----|
| Toluene                   | 108-88-3 | X   | -    | X    | ACTIVE  | 203-625-9 | -      | -   |
| Ethylaluminium dichloride | 563-43-9 | X   | -    | X    | ACTIVE  | 209-248-6 | -      | -   |

| Component                 | CAS-No   | IECSC | KECL     | ENCS | ISHL | TCSI | AICS | NZIoC | PICCS |
|---------------------------|----------|-------|----------|------|------|------|------|-------|-------|
| Toluene                   | 108-88-3 | X     | KE-33936 | X    | X    | X    | X    | X     | X     |
| Ethylaluminium dichloride | 563-43-9 | X     | KE-10127 | X    | X    | X    | X    | X     | X     |

**Legend:**

X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances**IECSC** - Chinese Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**ENCS** - Japanese Existing and New Chemical Substances**AICS** - Australian Inventory of Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

| Component | Canada - National Pollutant Release Inventory (NPRI)                        | Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances | Canada's Chemicals Management Plan (CEPA) |
|-----------|---|--|---|
| Toluene   | Part 1, Group A Substance<br>Part 5, Individual Substances Part 4 Substance |  |   |

**Other International Regulations****Authorisation/Restrictions according to EU REACH**

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances  | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|-----------|---|--|---|
| Toluene   | -   | Use restricted. See item 48. (see link for restriction details)<br>Use restricted. See item 75. (see link for restriction details) | -   |

<https://echa.europa.eu/substances-restricted-under-reach>

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component                 | CAS-No   | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|---------------------------|----------|----------|------------------------------|---------------------------|--|
| Toluene                   | 108-88-3 | Listed   | Not applicable               | Not applicable            | Not applicable                             |
| Ethylaluminium dichloride | 563-43-9 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

| Component                 | CAS-No   | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|---------------------------|----------|---|--|----------------------------|------------------------------------|
| Toluene                   | 108-88-3 | Not applicable  | Not applicable   | Not applicable             | Annex I - Y42                      |
| Ethylaluminium dichloride | 563-43-9 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |



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## 16. Other information

|                         |  |
|-------------------------|--|
| <b>Prepared By</b>      | Regulatory Affairs<br>Thermo Fisher Scientific<br>Email: EMSDS.RA@thermofisher.com   |
| <b>Creation Date</b>    | 28-July-2009   |
| <b>Revision Date</b>    | 26-December-2021   |
| <b>Print Date</b>       | 26-December-2021   |
| <b>Revision Summary</b> | This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals. |

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**