

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** >97% Diethylaluminum Chloride

**Product Code:** 2ET-ALCL-017-LIQ

**CAS Number:** 96-10-6

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS02 Flame

Flam. Liq. 1 H224 Extremely flammable liquid and Vapor.

Pyr. Liq. 1 H250 Catches fire spontaneously if exposed to air.

Self-heat. 2 H252 Self-heating in large quantities; may catch fire.

Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C; Corrosive

R34: Causes burns.

F; Highly flammable

R14/15-17: Reacts violently with water, liberating extremely flammable gases. Spontaneously flammable in air.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R67: Vapors may cause drowsiness and dizziness.  
Information concerning particular hazards for human and environment:  
Causes a narcotic effect.  
Hazards not otherwise classified  
No data available  
Label elements  
Labelling according to Regulation (EC) No 1272/2008  
The substance is classified and labeled according to the CLP regulation.  
Hazard pictograms



GHS02

GHS05

GHS07

Signal word

Danger

Hazard statements

H224 Extremely flammable liquid and Vapor.

H250 Catches fire spontaneously if exposed to air.

H252 Self-heating in large quantities; may catch fire.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P422 Store contents under inert gas.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B2 - Flammable liquid

B6 - Reactive flammable material

D2B - Toxic material causing other toxic effects

E - Corrosive material

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

3

4

3

Health (acute effects) = 3

Flammability = 4

Physical Hazard = 3

Other hazards

Results of PBT and vPvB assessment

PBT:

N/A  
vPvB:  
N/A

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

Substances

CAS No. / Substance Name:

96-10-6 Diethylaluminum chloride, 25% w/w in heptane

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### **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Causes serious eye damage.

Indication of any immediate medical attention and special treatment needed

No data available

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### **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing agents

Extinguishing powder. Do not use water.

For safety reasons unsuitable extinguishing agents

Water

Special hazards arising from the substance or mixture

Reacts violently with water

Spontaneously flammable in air.

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

Metal oxide fume

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

Environmental precautions:

Do not allow material to be released to the environment without official permits.

Do not allow product to enter drains, sewage systems, or other water courses.

Do not allow material to penetrate the ground or soil.

Methods and materials for containment and cleanup:

Keep away from ignition sources.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

Prevention of secondary hazards:

Keep away from ignition sources.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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## **SECTION 7. HANDLING AND STORAGE**

Handling

Precautions for safe handling

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Substance/product is self ignitable.

Keep ignition sources away.

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.

Store away from strong bases.

Store away from air.

Store away from water/moisture.

Further information about storage conditions:

Store under dry inert gas.

This product is moisture sensitive.

This product is air sensitive.

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

Specific end use(s)

No data available

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

Aluminum alkyls

mg/m<sup>3</sup>

Belgium TWA 5

BC Canada TWA 2

Ireland TWA 2.5

Quebec Canada TWA 2

United Kingdom TWA 2

n-Heptane

ppm

ACGIH TLV 400; 500-STEEL

Austria MAK 500

Belgium TWA 400; 500-STEEL

Denmark TWA 200

Finland TWA 300; 500-STEEL

France VME 400

Germany MAK 500

Japan OEL 200

Korea TLV 400; 500-STEEL

Netherlands MAC-TGG 400

Norway TWA 200

Poland TWA 1200 mg/m<sup>3</sup>; 2000 mg/m<sup>3</sup>-STEEL

Russia TWA 200

Sweden NGV 200; 300-KTV

Switzerland MAK-W 400; 800-KZG-W

United Kingdom 400-LTEL; 500-STEEL

USA PEL 500

96-10-6 Diethylaluminum chloride, 25% w/w in heptane (100.0%)

REL (USA) Long-term value: 2 mg/m<sup>3</sup>

as Al

TLV (USA) Long-term value: 1\* mg/m<sup>3</sup>

as Al;\*as respirable fraction

Additional information:

No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands:

Impervious gloves

Inspect gloves prior to use.

Suitability of gloves should be determined both by material and quality, the latter of which may vary by manufacturer.

Eye protection:

Tightly sealed goggles

Full face protection

Body protection:

Protective work clothing

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Liquid

Color: Colorless

Odor: Petroleum-like

Odor threshold: Not determined.

pH: Not determined.

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

Sublimation temperature / start: Not determined

Flash point: -18 °C (-0 °F)

Flammability (solid, gas)

Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Autoignition: Spontaneously flammable in air.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures is possible.

Explosion limits:

Lower: Not determined

Upper: Not determined

Vapor pressure: Not determined

Density at 20 °C (68 °F): 0.971 g/cm<sup>3</sup> (8.103 lbs/gal)

Relative density

Not determined.

Vapor density

Not determined.

Evaporation rate

Not determined.

Solubility in Water (H<sub>2</sub>O): Reacts violently Contact with water releases flammable gases

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

Dynamic: Not determined.

Kinematic: Not determined.

Other information

No data available

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## SECTION 10. STABILITY AND REACTIVITY

### Reactivity

Reacts violently with water.

In contact with water releases flammable gases which may ignite spontaneously.

Catches fire spontaneously if exposed to air.

### Chemical stability

Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

### Possibility of hazardous reactions

Spontaneously flammable in air.

Contact with water releases flammable gases

Reacts violently with water

### Conditions to avoid

No data available

Incompatible materials:

Oxidizing agents

Alcohols

Halocarbons

Air

Bases

Water/moisture

Hazardous decomposition products:

Carbon monoxide and carbon dioxide

Metal oxide fume

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## SECTION 11. TOXICOLOGICAL INFORMATION

### Information on toxicological effects

#### Acute toxicity:

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

LD/LC50 values that are relevant for classification:

No data

#### Skin irritation or corrosion:

Causes severe skin burns.

#### Eye irritation or corrosion:

Causes serious eye damage.

#### Sensitization:

No sensitizing effects known.

#### Germ cell mutagenicity:

No effects known.

#### Carcinogenicity:

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

#### Reproductive toxicity:

No effects known.

Specific target organ system toxicity - repeated exposure:

No effects known.

Specific target organ system toxicity - single exposure:

May cause drowsiness or dizziness.

May cause respiratory irritation.

Aspiration hazard:

No effects known.

Subacute to chronic toxicity:

Aluminum may be implicated in Alzheimers disease. Inhalation of aluminum containing dusts may cause pulmonary disease.

Subacute to chronic toxicity:

No effects known.

Subacute to chronic toxicity:

Ingestion of n-heptane may cause abdominal pain and nausea. Causes skin and eye irritation.

Inhalation may produce light headedness, dizziness, muscle incoordination, loss of appetite and nausea. Higher concentrations may cause CNS depression, narcosis and unconsciousness.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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## SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity:

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Ecotoxicological effects:

Remark:

Very toxic for aquatic organisms

Additional ecological information:

Do not allow material to be released to the environment without official permits.

Do not allow product to reach groundwater, water courses, or sewage systems.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

May cause long lasting harmful effects to aquatic life.

Avoid transfer into the environment.

Very toxic for aquatic organisms

Results of PBT and vPvB assessment

PBT:

N/A

vPvB:

N/A

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## SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation

Consult official regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation:



Disposal must be made according to official regulations.

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## SECTION 14. TRANSPORT INFORMATION

UN-Number

DOT, IMDG, IATA

UN3394

UN proper shipping name

DOT

Organometallic substance, liquid, pyrophoric, water-reactive (Diethylaluminum chloride/Heptane)

IMDG

ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER- REACTIVE

(Diethylaluminum chloride/Heptane), MARINE POLLUTANT

IATA

ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER- REACTIVE

(Diethylaluminum chloride/Heptane)

Transport hazard class(es)

DOT

Class

4.2 Substances liable to spontaneous combustion.

Label

4.2+4.3

Class

4.2 (SW) Substances liable to spontaneous combustion

Label

4.2+4.3

IMDG

Class

4.2 Substances liable to spontaneous combustion.

Label

4.2+4.3

IATA

Class

4.2 Substances liable to spontaneous combustion.

Label

4.2+4.3

Packing group

DOT, IMDG, IATA

I

Environmental hazards:

Environmentally hazardous substance, liquid; Marine Pollutant

Marine pollutant (IMDG):

Yes (P)

Symbol (fish and tree)

Special precautions for user

Warning: Substances liable to spontaneous combustion

EMS Number: F-G,S-M

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

N/A

Transport/Additional information:

DOT

Marine Pollutant (DOT):

No

Remarks:

Special marking with the symbol (fish and tree).

UN "Model Regulation":

UN3394, Organometallic substance, liquid, pyrophoric, water-reactive  
(Diethylaluminum chloride/Heptane), 4.2 (4.3), I

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## SECTION 15. REGULATORY INFORMATION

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

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)

Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer

Substance is not listed.

Prop 65 - Developmental toxicity

Substance is not listed.

Prop 65 - Developmental toxicity, female

Substance is not listed.

Prop 65 - Developmental toxicity, male

Substance is not listed.

Information about limitation of use:

For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

Substance is not listed.

REACH - Pre-registered substances

Substance is listed.

Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

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