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
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Emergency telephone number:
+1 800-424-9300

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS No. / Substance Name:
96-10-6 Diethylaluminum chloride, 25% w/w in heptane

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

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.

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.

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

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/m3
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-STEL
Austria MAK 500
Belgium TWA 400; 500-STEL
Denmark TWA 200
Finland TWA 300; 500-STEL
France VME 400
Germany MAK 500
Japan OEL 200
Korea TLV 400; 500-STEL
Netherlands MAC-TGG 400
Norway TWA 200
Poland TWA 1200 mg/m3; 2000 mg/m3-STEL
Russia TWA 200
Sweden NGV 200; 300-KTV
Switzerland MAK-W 400; 800-KZG-W
United Kingdom 400-LTEL; 500-STEL
USA PEL 500
96-10-6 Diethylaluminum chloride, 25% w/w in heptane (100.0%)

REL (USA) Long-term value: 2 mg/m^3
as Al

TLV (USA) Long-term value: 1* mg/m^3
as Al;*as repirable 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

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^3 (8.103 lbs/gal)
Relative density
Not determined.
Vapor density
Not determined.
Evaporation rate
Not determined.
Solubility in Water (H_2O): 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

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

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.

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
Ecotoxical 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

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.

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

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.
