

SAFETY DATA SHEET

Creation Date 03-Jan-2005

Revision Date 24-Dec-2021

Revision Number 4

1. Identification

Product Name Ethylaluminium dichloride, 0.9M solution in heptane

Cat No. : AC185450000; AC185451000; AC185458000

Synonyms EADC

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

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

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

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

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Skin Corrosion/Irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Aspiration Toxicity	Category 1

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 drowsiness or dizziness

**Precautionary Statements****Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Do not allow contact with air
Keep away from any possible contact with water, because of violent reaction and possible flash fire
Handle under inert gas. Protect from moisture
Keep cool

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

Wash contaminated clothing before reuse
IF ON SKIN: Immerse in cool water/wrap with wet bandages
Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages

Eyes

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

Ingestion

Do NOT induce vomiting
Rinse mouth

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

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

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects
Reacts violently with water

3. Composition/Information on Ingredients

Component	CAS No	Weight %
n-Heptane	142-82-5	85
Ethylaluminum dichloride	563-43-9	15

4. First-aid measures

Eye Contact	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
Inhalation	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required. Risk of serious damage to the lungs (by aspiration).
Ingestion	Do NOT induce vomiting. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
Most important symptoms and effects	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: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Dry chemical, soda ash, lime or sand. approved class D extinguishers. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	Water
Flash Point	-4 °C
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Flammable. Contact with water liberates toxic gas. Water reactive. Produce flammable gases on contact with water. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrocarbons. Burning produces obnoxious and toxic fumes. 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.

NFPA

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

Remove all sources of ignition. Take precautionary measures against static discharges. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). 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**

Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage.

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Keep from any possible contact with water. Corrosives area. Flammables area. Keep under nitrogen. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Acids. Alcohols. oxygen.

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

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
n-Heptane	TWA: 400 ppm STEL: 500 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 1600 mg/m ³ (Vacated) STEL: 500 ppm (Vacated) STEL: 2000 mg/m ³ TWA: 500 ppm TWA: 2000 mg/m ³	IDLH: 750 ppm TWA: 85 ppm TWA: 350 mg/m ³ Ceiling: 440 ppm Ceiling: 1800 mg/m ³	TWA: 400 ppm STEL: 500 ppm

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

Personal Protective Equipment**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

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.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Irritating
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	-4 °C
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Specific Gravity	0.740
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	> 180°C
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard	Yes
Stability	Reacts violently with water. Moisture sensitive. Air sensitive.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Incompatible products. Exposure to moist air or water.
Incompatible Materials	Acids, Alcohols, oxygen
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Hydrocarbons, Burning produces obnoxious and toxic fumes, Hydrogen chloride gas, Ethane
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

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
n-Heptane	>2000 mg/kg (rat)	LD50 = 3000 mg/kg (Rabbit)	LC50 > 73.5 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Irritation** Causes 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
n-Heptane	142-82-5	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 No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)

STOT - repeated exposure None known

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. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

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

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
n-Heptane	Not listed	LC50: = 375.0 mg/L, 96h (Cichlid fish)	Not listed	EC50: >10 mg/L/24h

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
n-Heptane	4.66

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.

14. Transport information

DOT

UN-No

UN3399

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE
Hazard Class 4.3
Subsidiary Hazard Class 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

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
n-Heptane	142-82-5	X	ACTIVE	-
Ethylaluminum dichloride	563-43-9	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
n-Heptane	142-82-5	X	-	205-563-8	X	X	X	X	X	KE-18271
Ethylaluminum dichloride	563-43-9	X	-	209-248-6	X	X	X	X	X	KE-10127

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
n-Heptane	X	X	X	-	X
Ethylaluminum dichloride	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
 DOT Marine Pollutant Y
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

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)
n-Heptane	-	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)
n-Heptane	142-82-5	Listed	Not applicable	Not applicable	Not applicable
Ethylaluminum 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)
n-Heptane	142-82-5	Not applicable	Not applicable	Not applicable	Not applicable
Ethylaluminum dichloride	563-43-9	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

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Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

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