SAFETY DATA SHEET

In accordance with 453/2010 and 1272/2008

(All references to EU regulations and directives are abbreviated into only the numeric term)

Issued 2015-06-05

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name **(±)-erythro-9,10-Dihydroxyoctadecanoic acid**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Laboratory chemicals
Industrial use

1.3. Details of the supplier of the safety data sheet

Company Larodan AB
Karolinska Institutet Science Park
Retzius väg 8
SE-171 65 SOLNA
Sweden

Telephone +46 20 15 22 00

E-mail info@larodan.com

Website www.larodan.com

1.4. Emergency telephone number

In case of emergency contact toxicological information, emergency tel 112 (within Europe) or 1-800-222-1222 (for USA). For other countries, use the built-in emergency number in your cell phone

For non-emergency poison information, see http://www.who.int/gho/phe/chemical_safety/poisons_centres/en/

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification in accordance with 1272/2008

Flammable liquids (Category 2)
Aspiration hazard (Category 1)
Skin Irritant (Category 2)
Hazardous to aquatic environment acute (Category 1)
Hazardous to aquatic environment chronic (Category 1)
STOT SE 3; Specific target organ toxicity - single exposure (Category 3)

2.2. Label elements

Label information in accordance with 1272/2008

Hazard pictograms

Signal words Danger

Hazard statements

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long-lasting effects

Precautionary statements:

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261	Avoid breathing dust/fumes/gas/mist/vapours/spray
P273	Avoid release to the environment..
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331	Do NOT induce vomiting.

2.3. Other hazards

Not relevant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product consists of a homogeneous liquid mixture.

3.2. Mixtures

Note that the table shows known hazards of the ingredients in a pure form. These hazards are reduced or eliminated when mixed or diluted, see Section 16d.

Constituent	Classification	Concentration
Ethanol CAS no:. 64-17-5 EC no:. 205-563-8	Flam. Liq. 2, H225 Carc. 1A, H350 Repr. 2, H361	95%
(±)-erythro-9,10-Dihydroxyoctadecanoic acid CAS No 120-87-6	Not considered to be harmful to health	5%

Explanations to the classification and labelling of the ingredients are given in Section 16e. Official abbreviations are printed in normal font. Text in italics are specifications and/or complement used in the calculation of the hazards of this mixture, see Section 16b

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Generally

Immediately call a POISON CENTER or doctor/physician.

Never leave a injured person alone. Their condition may rapidly worsen, sometimes several hours after the poisoning.

For those providing assistance to an injured person should avoid exposure and if risk of exposure exists, use appropriate respiratory protection.

Upon breathing in

Bring the injured person out into fresh air. Give artificial respiration if breathing has stopped. If breathing is difficult let trained personnel administer oxygen. Let the injured person rest in a warm place with fresh air and seek medical advice immediately.

Upon contact with the eyes

Rinse the eye for several minutes with lukewarm water. Contact a physician.

Upon skin contact

Remove contaminated clothes.

Clean with soap and abundant water. Please contact a doctor.

Upon ingestion

Immediately contact a doctor (Emergency phone 112).

Flush nose, mouth and throat with water.

4.2. Most important symptoms and effects, both acute and delayed

If ingested, it can cause burning pain in mouth and throat as well as cause nausea, vomiting, diarrhoea and abdominal pain. Prolonged or repeated inhalation of vapors in high concentrations may cause permanent damage to the nervous system, including the brain. In case of serious poisoning, the injured need to be subject to medical observation for at least 48 hours, due to the risk of pulmonary oedema. Suspected to be harmful to the unborn child. Suspected of causing cancer. Headache. Vertigo. Blindness. Prolonged inhalation can cause loss of consciousness and/or death.

4.3. Indication of any immediate medical attention and special treatment needed

If the injured person is unconscious or drowsy, place them in the recovery position.

Symptomatic treatment.

When contacting a physician, take this SDS with you.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Recommended extinguishing agents

Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO_2).

Unsuitable extinguishing agents

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Produces fumes containing harmful gases (carbon monoxide and carbon dioxide) when burning, and, in case of incomplete combustion, aldehydes and other toxic, harmful, irritant or environmentally harmful substances.

Toxic substances can be spread in case of fire.

Note that the extinguishing water may contain toxic substances or other hazardous substances.

Inflammable.

5.3. Advice for fire-fighters

In case of fire and/or explosion do not breathe fumes. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

Evacuate all not-authorized personnel.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use recommended safety equipment, see section 8.

Do not inhale vapours and avoid contact with skin, eyes and clothes when cleaning up spill.

Ensure good ventilation.

After splashing immediately follow the instructions in section 4.

Switch off equipment which has an exposed flame, glows, or has a heat source of some other kind.

Keep unauthorized and unprotected people at a safe distance.

6.2. Environmental precautions

Avoid discharge into soil, water or sewers.

6.3. Methods and material for containment and cleaning up

Small spills can be wiped up with a cloth or similar. Then flush the spill site with water. Larger spills should first be covered with sand or earth and then be collected. Collected material should be disposed according to Section 13.

After thoroughly removing the spill, clean contaminated surfaces with water.

Do not try to clean up yourself, unless you are properly trained for decontaminating this product.

Residues left behind after cleaning shall be treated as hazardous waste. For further information, contact the local authority sanitisation works. Present this safety data sheet.

6.4. Reference to other sections

See section 8 and 13 for personal protection equipment and disposal considerations

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not inhale the fumes and avoid exposure to skin, eyes and clothing.

Take off work clothes and protective gear before meals.

Do not mix with other products.

Read and follow the manufacturer's instructions.

The product should be stored in a manner which prevents hazards to health and the environment. Avoid exposure to humans and animals and do not discharge the product in a sensitive environment.

Store this product separately from food items and keep it out of the reach of children and pets.

Do not eat, drink or smoke in premises where this product is stored.

Work in order to avoid spillage. If spillage does occur, address it immediately in accordance with the directions specified in Section 6 of this safety data sheet.

Avoid open fire, hot items, sparks or other ignition sources.

The product must not be left without supervision during handling.

Wash your hands after using the product.

Remove clothes which have been splattered.

Wash contaminated clothing before reuse.

Handle and open container with care.

Take precautionary measures against static discharge.

7.2. Conditions for safe storage, including any incompatibilities

Store in dry and cool area.

Handle in a fume cupboard or in a space which is equally safe.

Handle in premises which have modern ventilation standards.

Store in a location suited for toxic substances, preferably locked.

An evacuation plan should be available and evacuation routes must not be blocked.

Emergency showers and eye-rinsing facilities must be available at the workplace.

Store only in the original package.

7.3. Specific end uses

See identified uses in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. National limit values, USA

Ethanol

(TWA): 200 ppm

Other ingredients (cf. Section 3) have no occupational exposure limit values.

8.2. Exposure controls

For the safety and health protection of workers according to EU directives 89/391 , 98/24 and 98/24 and national occupational legislation, measures due to both the physical and general health hazards of this product and the carcinogenic and/or mutagenic properties of any of the ingredients (see Sections 2, 3, 10 and 11) must be considered. Use protective glasses, safety goggles, or a visor.

Use protective gloves of butyl rubber, Viton or fluorine rubber, or get advice from an occupational medical expert about alternative materials. Show this safety data sheet.

Only under exceptional circumstance shall protective gloves be worn for longer time than one hour. For service work or work lasting more than 30 minutes, choose gloves of high quality (Class 4-6). For work up to 30 minutes use gloves of Class 2. Class 1 gloves are sufficient for up to 10 minutes. The gloves shall cover as much of the forearms as needed for the work.

Choose a mechanical wear strength in line with the nature of the work in accordance to this pictogram with four digits that indicate resistance against abrasion, cutting effects, tear and puncture, where 1 is the lowest and 4 or 5 is the best.

Protect all exposed skin from coming into contact with the product.

Use proper protective breathing protection.

A breathing mask of the A filter (brown) type, may be required.

For limitation of environmental exposure, see Section 12.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: Not indicated
b)	Odour	Not applicable
c)	Odour threshold	Not applicable
d)	pH	Not applicable
e)	Melting point/freezing point	Not applicable
f)	Initial boiling point and boiling range	Not applicable
g)	Flash point	−4 °C (Ethanol)
h)	Evaporation rate	Not applicable
i)	Flammability (solid, gas)	Not applicable
j)	Upper/lower flammability or explosive limits	Not applicable
k)	Vapour pressure	Not applicable
l)	Vapour density	Not applicable
m)	Relative density	Not applicable
n)	Solubility	Not applicable
o)	Partition coefficient: n-octanol/water	Not applicable
p)	Auto-ignition temperature	Not applicable
q)	Decomposition temperature	Not applicable
r)	Viscosity	Not applicable
s)	Explosive properties	Not applicable
t)	Oxidising properties	Not applicable

9.2. Other information

No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Not indicated

10.2. Chemical stability

The product is stable at normal storage and handling conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions known during normal use.

10.4. Conditions to avoid

Avoid heat, sparks and open flames.

10.5. Incompatible materials

Avoid contact with acids, bases, transition metals (and salts of transition metals), reducing agents, organic materials and other contaminants.

10.6. Hazardous decomposition products

Carbon monoxide (CO), carbon dioxide (CO_2) and harmful and irritating substances.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute effects

This product is not classified as an acute toxicity hazard. See data above for individual ingredient acute toxicity data. May be an aspiration hazard. May cause central nervous system effects. May cause irritation to the nose, throat and upper respiratory tract. Causes moderate skin irritation.

Repeated dose toxicity

Prolonged exposure to the substance is dangerous.Hazardous by WHMIS criteria. Prolonged or repeated exposure may result in peripheral nervous system (peripheral neuropathy). Chronic skin contact with low concentrations may cause dermatitis.

Carcinogenicity

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Teratogenicity

This product is not expected to be a teratogen.

Sensitisation

Not expected to be a skin or respiratory sensitizer.

Corrosive and irritating effects

Causes moderate skin irritation.

Synergism and antagonism

No information is available.

Reproductive effects

This product is not expected to cause reproductive or developmental effects.

Symptoms and target organs

Direct eye contact may cause slight or mild, transient irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Causes moderate skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Ingestion of large amounts may cause nausea, vomiting, diarrhea, as well as depression of the central nervous system. May be an aspiration hazard. May cause central nervous system effects. May cause irritation to the nose, throat and upper respiratory tract. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Relevant toxicological properties

Ethanol

LC50 rat (Inhalation) 4h = 73mg/l

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ethanol

LL50 96h = 1.070 mg/l

EC50 48 h = 1.00 mg/l

EL50 72h = 4.138 mg/l

12.2. Persistence and degradability

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
The product itself and its products of degradation are not toxic.

12.3. Bioaccumulative potential

Not available.

12.4. Mobility in soil

Information about mobility in nature is not available.

12.5. Results of PBT and vPvB assessment

No chemical safety report has been executed.

12.6. Other adverse effects

Acute aquatic toxicity: Toxic to aquatic life.
Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste handling for the product

Product as well as packaging must be disposed as hazardous waste.

Not completely empty packaging can contain remnants of dangerous substances and should therefore be handled as hazardous waste according to the above. Completely empty packaging can be recycled.

Avoid discharge into sewers.

Observe local regulations.

Recycling of the product

Empty, rinsed packaging is sent for recycling where practicable.

Residual, old or contaminated product should be disposed of at a waste management facility.

SECTION 14: TRANSPORT INFORMATION

This product is only supposed to be transported by road or railway and just the transport regulations ADR/RID thus apply. If other means of transport are to be used, contact the publisher of this safety data sheet.

14.1. UN number

1206

14.2. UN proper shipping name

FLAMMABLE LIQUID, N.O.S. (HEPTANES)

14.3. Transport hazard class(es)

Class

3: Flammable liquids

Classification code (ADR/RID)

F1: Flammable liquids

Subsidiary risk (IMDG)

Labels

14.4. Packing group

Packing group: II

14.5. Environmental hazards

Product contains environmentally hazardous substances: n-hexane. Marine pollutant.

14.6. Special precautions for user

Tunnel restrictions

Tunnel category: D/E

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

Not applicable

14.8 Other transport information

Transport category: 3; Maximum total quantity per transport unit: 1000 kgs or litres.

SECTION 15: REGULATORY INFORMATION

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

Not applicable.

15.2. Chemical safety assessment

Assessment and chemical safety report in accordance with 1907/2006 Annex I has not yet been performed.

SECTION 16: OTHER INFORMATION

16a. Indication of where changes have been made to the previous version of the safety data sheet

Revisions of this document

This is the first version.

16b. Legend to abbreviations and acronyms used in the safety data sheet

Full texts for Hazard Class and Category Code mentioned in section 3

Flam. liq. 2 H225	Flammable liquids (Category 2)
Carc 1A, H350	May cause cancer
Repr.2,H361	Skin Irritant (Category 2)
	Hazardous to aquatic environment chronic (Category 1)
	Hazardous to aquatic environment acute (Category 1)
	Specific target organ toxicity - single exposure (Category 3)

Comprehensive definition of the hazards mentioned in Section 2

Flammable liquids (Category 2)
Flash point < 23 °C and bp > 35°C; Flammable liquid Category 2
EXTREMELY FLAMMABLE LIQUID AND VAPOR.
Flammable by WHMIS criteria. Extremely flammable liquid and vapor. This material may be ignited by heat, sparks, flames, or other sources of ignition (e.g static electricity, pilot lights, or mechanical / electrical equipment). Vapors are heavier than air and may spread along floors. Vapors may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode. Vapors may form explosive mixtures with air.

Aspiration hazard (Category 1)
May be an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal. May cause irritation to the nose, throat and upper respiratory tract. Aspiration may occur during swallowing or vomiting, resulting in lung injury. Prolonged or repeated exposure may result in peripheral nervous system (peripheral neuropathy).

Skin Irritant (Category 2)
Causes moderate skin irritation.

Hazardous to aquatic environment akute (Category 1)
Toxic to aquatic life. Toxic to aquatic organisms. May cause adverse effects in the aquatic environment.

Hazardous to aquatic environment chronic (Category 1)
Toxic to aquatic life. Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

STOT SE 3; Specific target organ toxicity - single exposure (Category 3)
Category 3: May cause respiratory irritation (respiratory tract irritation).

Explanations of the abbreviations in Section 14

ADR European Agreement concerning the International Transport of Dangerous Goods by Road
RID Regulations concerning the International Transport of Dangerous Goods by Rail
Tunnel restriction code: D/E; Transport by bulk or via tank: Passage forbidden through tunnels of category D and E,
Other transportation means: Passage forbidden through tunnels of category E.
Transport category: 2; Maximum total quantity per transport unit: 1000 kgs or litres.

16c. Key literature references and sources for data

Sources for data

Primary data for the calculation of the hazards has preferentially been taken from the official European classification list, 1272/2008 Annex I , as updated to 2015-06-09.
Where such data was lacking, on the second hand the documentation on which this official classification is based was used, e.g. IUCLID (International Uniform Chemical Information Database). On the third hand, information was used from reputable international chemical suppliers, and on the fourth hand from other available information, e.g. safety data sheets from other suppliers or information from non-profit associations, whereby the reliability of the source was judged by an expert. If, in spite of this, reliable information was not found, the hazards were judged by expert opinions based on the known properties of similar substances, and according to the principles in 1907/2006 and 1272/2008.

Full texts for Regulations mentioned in this Safety Data Sheet

453/2010	COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
1272/2008	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
89/391	COUNCIL DIRECTIVE (89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
98/24	COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)
1907/2006	REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC Annex I

16d. Methods of evaluating information referred to in 1272/2008 Article 9 which was used for the purpose of classification

The calculation of the hazards of this mixture has been performed as an evaluation by applying a weight of evidence determination using expert judgement in accordance with 1272/2008 Annex I, weighing all available information having a bearing on the determination of the hazards of the mixture, and in accordance with 1907/2006 Annex XI.

16e. Advice on any training appropriate for workers to ensure protection of human health and the environment

Warning for misuse

This product can cause severe injuries if used improperly. Read and follow carefully the instructions in this safety sheet and other appropriate risk information. At professional use the employer is responsible for the staff being well aware of the risks.

Other relevant information

Editorial information

This safety data sheet has been generated by the program KemRisk®, KemRisk Sweden AB, Teknikringen 10, SE-583 30 Linköping, Sweden.