

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



DIHYDROLIPOIC ACID

Version 3.4 / REG_EU
Revision Date: 09.12.2019

Specification: 132133
Material no.:

Date of first issue: 09.12.2019
Print Date: 27.03.2020

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : DIHYDROLIPOIC ACID
Registration number : 01-2120065751-56-0000
CAS-No. : 462-20-4

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

Use of the Sub-
stance/Mixture : intermediate product for organic syntheses

1.3 Details of the supplier of the safety data sheet

Company : AlzChem Trostberg GmbH
Dr.-Albert-Frank-Str. 32
83308 Trostberg, Germany
Telephone : +49 8621 86-3351
E-mail address of person
responsible for the SDS : alz-pst@alzchem.com

1.4 Emergency telephone number

Emergency telephone num-
ber : +49 8621 86-2776
AlzChem Trostberg GmbH, Fire Brigade

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin irritation, Category 2	H315: Causes skin irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



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Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H411 Toxic to aquatic life with long lasting effects.
Precautionary statements	:	Prevention: P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. Response: P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER/doctor.

2.3 Other hazards

A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	:	Dihydrolipoic acid
CAS-No.	:	462-20-4

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
6,8-disulfanyloctanoic acid	462-20-4 610-288-5	96 - 100

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	:	Seek medical advice in case of symptoms caused by eye or skin contact, inhalation or swallowing. Remove contaminated or soaked clothing immediately and dispose of safely.
If inhaled	:	Remove to fresh air.
In case of skin contact	:	Wash off with plenty of water and soap immediately.

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- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes.
Remove contact lenses if this can be easily done.
Immediate further treatment in ophthalmic hospital/ ophthalmologist.
- If swallowed : Do NOT induce vomiting.
Clean mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Symptomatic treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray, foam, CO₂, dry powder.

Unsuitable extinguishing media : high volume water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products : Carbon oxides
Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

Further information : Closed containers may rupture or explode (due to pressure build-up) when exposed to extreme heat.
Cool container with jet of water spray from a safe distance

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment; see section 8.
Ensure adequate ventilation.

6.2 Environmental precautions

Environmental precautions : Product or extinguishing water with product must not be allowed to enter soil, sewers or natural bodies of water.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel,

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acid binder, universal binder).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : For professional use only.
The substance must be handled under strictly controlled conditions in accordance with Article 17/18 of the REACH regulation.
Provide sufficient ventilation and exhaust at the workplace.
Handle under inert gas
Avoid formation of aerosol.

Advice on protection against fire and explosion : No special precautions required.

Hygiene measures : Do not inhale vapours / aerosols. Contact with skin, eyes and clothes must be strictly avoided. Take off contaminated clothing and shoes immediately. Before reuse wash contaminated clothing with plenty of water. Do not eat, drink or smoke while working. Wash hands, and/or face before breaks and when workday is finished. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in cool place. Keep container tightly closed.

Further information on storage conditions : Cover with dry inert gas. Protect against light.

Storage class (TRGS 510) : 10, Combustible liquids

7.3 Specific end use(s)

Specific use(s) : We are unaware of any specific end uses which go beyond the data reported in Section 1.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

None known

8.2 Exposure controls

Personal protective equipment

Eye protection : close-fitting protective goggles (e.g. closed goggles)

Hand protection

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Material : Chloroprene, Recommendation: Camapren 722
Break through time : > 60 min
Glove thickness : 0,6 mm
Directive : DIN EN 374
Manufacturer : Kächele-Cama Latex GmbH (KCL), Germany

Material : Butyl-rubber, Recommendation: Butoject 898
Break through time : > 480 min
Glove thickness : 0,7 mm
Directive : DIN EN 374
Manufacturer : Kächele-Cama Latex GmbH (KCL), Germany

Skin and body protection : Protective clothing
If intensive contact with the hazardous material cannot be avoided with certainty, order (depending on the hazard involved) additional protective measures for example chemical protective suit.

Respiratory protection : Use suitable respiratory protection where aerosols/vapours are generated.
Dust protection mask in accordance with EN 149 FFP2

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid
Colour : colourless to slightly yellow
Odour : odourless
: no data available
Boiling point/boiling range : 254,2 °C
Flash point : 175,6 °C
Vapour pressure : < 0,001 hPa
Density : ca. 1,1 g/cm³
Solubility(ies)
Water solubility : of low solubility, forms cloudy solutions
Partition coefficient: n-octanol/water : log Pow: 1,9
Auto-ignition temperature : 285 °C

9.2 Other information

Surface tension : 53,6 mN/m, 20 °C

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SECTION 10: Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazardous reactions are known if properly handled and stored.

10.4 Conditions to avoid

Conditions to avoid : Exposure to air.
Exposure to light.

10.5 Incompatible materials

Materials to avoid : Oxygen
Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions.
see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Acute oral toxicity : Assessment: Harmful if swallowed.

Components:

6,8-disulfanyloctanoic acid:

Acute oral toxicity : LD50 (Rat, female): 576 mg/kg
Method: Directive 92/69/EEC, B.1
Remarks: Own test result.

Skin corrosion/irritation

Product:

Assessment : Causes skin irritation.

Components:

6,8-disulfanyloctanoic acid:

Species : Rabbit
Exposure time : 4 h
Assessment : Irritating to skin.

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Method : Directive 92/69/EEC, B.4
Remarks : Own test result.

Serious eye damage/eye irritation

Product:

Assessment : Causes serious eye damage.

Components:

6,8-disulfanyloctanoic acid:

Species : Rabbit
Exposure time : 24 h
Assessment : Risk of serious damage to eyes.
Method : Directive 92/69/EEC B.5
Remarks : Own test result.

Respiratory or skin sensitisation

Product:

Assessment : May cause an allergic skin reaction.

Components:

6,8-disulfanyloctanoic acid:

Test Type : maximization test
Species : guinea pig
Assessment : May cause sensitisation by skin contact.
Method : Directive 92/69/EEC, B.6
Remarks : Own test result.

Germ cell mutagenicity

Components:

6,8-disulfanyloctanoic acid:

Germ cell mutagenicity- Assessment : Not mutagenic in Ames Test
Remarks: Own study, IUCLID

Carcinogenicity

Components:

6,8-disulfanyloctanoic acid:

Remarks : No data available

Carcinogenicity - Assessment :
Remarks: Own study, IUCLID

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STOT - single exposure

Components:

6,8-disulfanyloctanoic acid:

Remarks : no data available

STOT - repeated exposure

Components:

6,8-disulfanyloctanoic acid:

Remarks : no data available

Aspiration toxicity

Components:

6,8-disulfanyloctanoic acid:

No data available

Further information

Product:

Remarks : No additional toxicological data are available.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Ecotoxicology Assessment

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

Components:

6,8-disulfanyloctanoic acid:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna): 5 mg/l
Exposure time: 48 h
Method: Directive 92/69/EEC C.2
Remarks: Own test result.

12.2 Persistence and degradability

Components:

6,8-disulfanyloctanoic acid:

Biodegradability : Biodegradation: 15 %
Exposure time: 28 d
Method: OECD 301 B
Remarks: Not readily biodegradable.

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12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

12.6 Other adverse effects

Product:

Additional ecological information : No further ecotoxicological data are available.
Avoid release to the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Must be brought to an adequate waste treatment facility, in conformity with applicable waste disposal regulations.

Contaminated packaging : Packaging, that can not be reused after cleaning must be disposed or recycled in accordance with all federal, national and local regulations.

SECTION 14: Transport information

14.1 UN number

ADR : UN 3082
RID : UN 3082
IMDG : UN 3082
IATA : UN 3082

14.2 UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(dihydrolipoic acid)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(dihydrolipoic acid)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(dihydrolipoic acid)

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IATA : Environmentally hazardous substance, liquid, n.o.s.
(dihydrolipoic acid)

14.3 Transport hazard class(es)

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADR

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Class 9 - Miscellaneous dangerous substances and articles
Remarks : ERG-Code 9L

IATA_P (Passenger)

Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Class 9 - Miscellaneous dangerous substances and articles
Remarks : ERG-Code 9L

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

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Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

15.2 Chemical safety assessment

No substance safety assessment is required for this product because it is an internal local intermediate product and/or a transported intermediate product.

SECTION 16: Other information

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International

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Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

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.

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