

Chemical Safety Data Sheet MSDS / SDS

9-Tetradecenoic acid, 1,1',1'',1'''-[(2R,14R)-5,8,11-trihydroxy-5,11-dioxido-4,6,10,12-tetraoxa-5,11-diophosphapentadecane-1,2,14,15-tetrayl] ester, sodium salt (1:2), (9Z,9'Z,9''Z,9'''Z)-

Revision Date:2026-05-31 Revision Number:1

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

Product name : 9-Tetradecenoic acid, 1,1',1'',1'''-[(2R,14R)-5,8,11-trihydroxy-5,11-dioxido-4,6,10,12-tetraoxa-5,11-diophosphapentadecane-1,2,14,15-tetrayl] ester, sodium salt (1:2), (9Z,9'Z,9''Z,9'''Z)-

CBnumber : CB011018353

CAS : 2260669-33-6

Synonyms : Cardiolipin (14:1/14:1/14:1/14:1) (sodium salt)

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.

Uses advised against : none

Company Identification

Company : Chemicalbook

Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing

Telephone : 010-86108875

SECTION 2: Hazards identification**GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

Precautionary statements

P308+P313 IF exposed or concerned: Get medical advice/attention.

P302+P352 IF ON SKIN: wash with plenty of soap and water.

P273 Avoid release to the environment.

P201 Obtain special instructions before use.

Hazard statements

H412 Harmful to aquatic life with long lasting effects

H372 Causes damage to organs through prolonged or repeated exposure

H351 Suspected of causing cancer

H336 May cause drowsiness or dizziness

H331 Toxic if inhaled

H319 Causes serious eye irritation

H315 Causes skin irritation

H302 Harmful if swallowed

SECTION 3: Composition/information on ingredients

Substance

Product name	: 9-Tetradecenoic acid, 1,1',1'',1'''-[(2R,14R)-5,8,11-trihydroxy-5,11-dioxido-4,6,10,12-tetraoxa-5,11-diophosphapentadecane-1,2,14,15-tetrayl] ester, sodium salt (1:2), (9Z,9'Z,9''Z,9'''Z)-
Synonyms	: Cardiolipin (14:1/14:1/14:1/14:1) (sodium salt)
CAS	: 2260669-33-6
MF	: C65H119NaO17P2
MW	: 1257.59

SECTION 4: First aid measures

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

After eye contact

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing

Immediately call a doctor.

Most important symptoms and effects, both acute and delayed

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents

Use fire fighting measures that suit the environment.

A solid water stream may be inefficient.

Special hazards arising from the substance or mixture

67-56-1 During heating or in case of fire poisonous gases are produced.

Advice for firefighters

Protective equipment

Mouth respiratory protective device.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Mount respiratory protective device.

Environmental precautions

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

Methods and material for containment and cleaning up

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

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Protective Action Criteria for Chemicals

PAC-1

67-66-3 Chloroform 2.0 ppm

PAC-2

67-66-3 Chloroform 64 ppm

PAC-3

67-66-3 Chloroform 3200 ppm

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

Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

Information about protection against explosions and fires

Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage

Store in accordance with information listed on the product insert.

Requirements to be met by storerooms and receptacles

No special requirements.

Information about storage in one common storage facility

Not required.

Further information about storage conditions

Keep receptacle tightly sealed.

Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

Control parameters

Components with limit values that require monitoring at the workplace:

67-66-3 Chloroform	
PEL	Ceiling limit value: 240 mg/m ³ , 50 ppm
REL	Short-term value: 9.78* mg/m ³ , 2* ppm 60-min; See Pocket Guide App. A
TLV	Long-term value: 49 mg/m ³ , 10 ppm
	A3

Additional information

The lists that were valid during the creation were used as basis.

Exposure controls

Appropriate engineering controls

No further data; see section 7.

Personal protective equipment

General protective and hygienic measures

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Breathing equipment

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

Protection of hands

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection

Safety glasses

Tightly sealed goggles

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical State

Liquid

Color

Colorless

Odor

Pleasant

Structural Formula

C₆₅H₁₁₆O₁₇P₂ 2Na

Molecular Weight

1,277.6 g/mol

Storage Buffer

Odor Threshold

Not determined.

Formulation

Melting point/Melting range

-63.5 °C (-82.3 °F)

Boiling point/Boiling range

61 °C (141.8 °F)

Flammability

Not applicable.

Explosion limits

Lower: Not determined.

Upper: Not determined.

Flash point

Not applicable.

Auto igniting

982 °C (1,799.6 °F)

Decomposition temperature

Not determined.

pH

Not determined.

Viscosity

Kinematic

Not determined.

SOLUBILITY

Chloroform: Soluble

Dynamic

at 20 °C (68 °F): 0.56 mPas

Solubility in / Miscibility with

Chloroform: Soluble

Water at 20 °C (68 °F)

8 g/l

Partition coefficient (n-octanol/water)

Not determined.

Vapor Pressure at 20 °C (68 °F)

211 hPa (158.3 mm Hg)

Density at 20 °C (68 °F)

1.48 g/cm³ (12.3506 lbs/gal)

Relative Density

Not determined.

Vapor Density

Not determined.

Particle characteristics

Not applicable.

Other information

Appearance

Form

Liquid

Important information on protection of health and environment, and on safety.

Ignition temperature

Product is not selfigniting.

Danger of explosion

Product does not present an explosion hazard.

VOC content

0.00 % 0.0 g/l / 0.00 lb/gal

Solids content

1.0 %

Change in condition

Evaporation Rate

Not determined.

SECTION 10: Stability and reactivity

Reactivity

No further relevant information available.

Chemical stability

Thermal decomposition / conditions to be avoided

No decomposition if used according to specifications.

Possibility of hazardous reactions

No dangerous reactions known.

Conditions to avoid

No further relevant information available.

Incompatible materials

No further relevant information available.

Hazardous decomposition products

No dangerous decomposition products known.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD/LC50 values that are relevant for classification:

Substance / Estimate	Route	Endpoint	Value
ATE (Acute Toxicity Estimate)	Oral	LD50	909 mg/kg (rat)
ATE (Acute Toxicity Estimate)	Inhalative	LC50/4 h	3.1 mg/l (rat)
67-66-3 Chloroform	Oral	LD50	908 mg/kg (rat) OECD Test Guideline 401

67-66-3 Chloroform	Inhalative	LC50/4 h	3.1 mg/l (rat) Expert judgment
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Primary irritant effect

on the skin

Irritant to skin and mucous membranes.

on the eye

Irritating effect.

Sensitization

No sensitizing effects known.

Additional toxicological information

The product shows the following dangers according to internally approved calculation methods for preparations

Toxic

Harmful

Irritant

Interactive effects

No interactive effects between components are known.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

67-66-3 Chloroform 2B

NTP (National Toxicology Program)

67-66-3 Chloroform R

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

Alternative sources for toxicological information

No non-standard sources for toxicological information where used.

SECTION 12: Ecological information

Toxicity

Aquatic toxicity

No further relevant information available.

Persistence and degradability

No further relevant information available.

Bioaccumulative potential

No further relevant information available.

Mobility in soil

No further relevant information available.

Results of PBT and vPvB assessment

PBT

Not applicable.

vPvB

Not applicable.

PBT:

Not applicable.

vPvB:

Not applicable.

Other adverse effects

Additional ecological information

General notes

Water hazard class 3 (Self-assessment) extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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

SECTION 13: Disposal considerations

Waste treatment methods

Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings

Recommendation

Disposal must be made according to official regulations.

Recommended cleansing agent

Water, if necessary with cleansing agents.

SECTION 14: Transport information

UN-Number

DOT, IMDG, IATA UN1888

UN proper shipping name

DOT, IATA Chloroform solution

IMDG CHLOROFORM solution

Transport hazard class(es)

DOT

Class: 6.1 Toxic substances

Label: 6.1

IMDG, IATA

Class: 6.1 Toxic substances

Label: 6.1

Packing group

DOT, IMDG, IATA III

Environmental hazards

Not applicable.

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

Not applicable.

Transport/Additional information

DOT:

Quantity limitations

On passenger aircraft/rail: 60 L

On cargo aircraft only: 220 L

IMDG:

Limited quantities (LQ)

5L

Excepted quantities (EQ)

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

IATA:

Remarks

When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

Special precautions for user

Warning: Toxic substances

Hazard identification number (Kemler code)

60

EMS Number

F-A, S-A

Stowage Category

A

Stowage Code

SW2 Clear of living quarters.

UN "Model Regulation"

UN 1888 CHLOROFORM SOLUTION, 6.1, III

SECTION 15: Regulatory information

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

No further relevant information available.

Sara

Section 355 (extremely hazardous substances):	67-66-3 Chloroform
Section 313 (Specific toxic chemical listings):	67-66-3 Chloroform
TSCA (Toxic Substances Control Act):	67-66-3 Chloroform ACTIVE
Hazardous Air Pollutants 67-66-3 Chloroform	
Chemicals known to cause cancer:	67-66-3 Chloroform
Chemicals known to cause reproductive toxicity for females:	None of the ingredients is listed.
Chemicals known to cause reproductive toxicity for males:	None of the ingredients is listed.
Chemicals known to cause developmental toxicity:	67-66-3 Chloroform

Carcinogenic categories

EPA (Environmental Protection Agency):
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67-66-3

Chloroform B2, L, NL

TLV (Threshold Limit Value)

67-66-3

Chloroform A3

67-66-3

Chloroform

Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute toxicity - oral 4: Acute toxicity – Category 4

Acute toxicity - inhalation 3: Acute toxicity – Category 3

Skin irritation 2: Skin corrosion/irritation – Category 2

Eye irritation 2A: Serious eye damage/eye irritation – Category 2A

Carcinogenicity 2: Carcinogenicity – Category 2

Reproductive toxicity 2: Reproductive toxicity – Category 2

Specific target organ toxicity (single exposure) 3: Specific target organ toxicity (single exposure) – Category 3

Specific target organ toxicity (repeated exposure) 1: Specific target organ toxicity (repeated exposure) – Category 1

Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.