

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended



Rodutherm VP3

Creation date 19th November 2022

Revision date Version 1.0

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

1.1. Product identifier

RODUTHERM VP3

Substance / mixture

substance

Chemical name

Cyclohexylbenzene (phenylcyclohexane)

CAS number

827-52-1

EC (EINECS) number

212-572-0

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

Substance's intended use

Heat transferring fluid.

Industrial uses.

Commercial uses.

The use descriptors

PC 16 Heat transfer fluids

Substance uses advised against

The product should not be used in ways other than those referred in Section 1. Do not use for private purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Name or trade name

Rodutherm VP3

Address

Productieweg 8, 3481MH, Harmelen

Netherlands

Phone

+31 6 10 27 52 11

E-mail

info@rodun-int.com

Web address

<https://rodun-int.com>

Competent person responsible for the safety data sheet

Name

Rodun International BV

E-mail

info@rodun-int.com

1.4. Emergency telephone number

GGIZ +31 6 10 27 52 11; 24 h, Monday - Sunday

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is classified as dangerous.

Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H304; H400; H410

Most serious adverse effects on human health and the environment

May be fatal if swallowed and enters airways. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Hazard pictogram



Dangerous substance

Cyclohexylbenzene (phenylcyclohexane)

(EC: 212-572-0; CAS: 827-52-7)

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Hazard statements

H304; H400; H410 May be fatal if swallowed and enters airways. Very toxic to aquatic life with long lasting effects.

Precautionary statements

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P331 Do NOT induce vomiting.

P501 Dispose of contents/container to by handing over to the person authorized to dispose of waste or by returning to the supplier.

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Repeated exposure may cause skin dryness or cracking. Does not contain any PMT or vPvM components.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
CAS: 827-52-1 EC: 212-572-0	substance main component Cyclohexylbenzene (phenylcyclohexane)	100	Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H304; H400; H410	1, 2, 3

Notes

- 1 A substance for which exposure limits are set.
- 2 Substance of very high concern - SVHC.
- 3 Very persistent and very bioaccumulative

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet.

If inhaled

Terminate the exposure immediately; move the affected person to fresh air. Protect the person against growing cold. Provide medical treatment if irritation, dyspnoea or other symptoms persist.

If on skin

Take off contaminated clothing. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. Rinsing should continue at least for 10 minutes.

If swallowed

Rinse the mouth. No vomiting. To consult a doctor immediately.

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

If inhaled

Not expected.

If on skin

Not expected.

If in eyes

Not expected.

If swallowed

Not expected.

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

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water. Do not allow to enter drains.

6.3. Methods and material for containment and cleaning up

Spilled product should be covered with suitable (non-flammable) absorbing material (sand, diatomaceous earth, earth and other suitable absorption materials); to be contained in well closed containers and removed as per the Section 13. In the event of leakage of the substantial amount of the product, inform fire brigade and other competent bodies. After removal of the product, wash the contaminated site with plenty of water. Do not use solvents.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Prevent formation of gases and vapours in concentrations exceeding the occupational exposure limits. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection. Avoid release to the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose.

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Storage class

10 - Other combustible liquids

7.3. Specific end use(s)

not available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

European Union

Commission Directive (EU) 2017/164

Substance name (component)	Type	Value
Terphenyl, hydrogenated (CAS: 827-52-1)	OEL 8 hours	Not establishedmg/m ³
	OEL 8 hours	Not establishedppm
	OEL 15 minutes	Not establishedmg/m ³
	OEL 15 minutes	Not establishedppm
	OEL 8 hours	Not establishedmg/m ³
	OEL 8 hours	Not establishedppm
	OEL 15 minutes	Not establishedmg/m ³
	OEL 15 minutes	Not establishedppm

Germany

TRGS 900

Substance name (component)	Type	Value
Terphenyl, hydrogenated (CAS: 827-52-1)	ASGW	Not establishedmg/m ³

Germany

TRGS 900

Substance name (component)	Type	Value
Terphenyl, hydrogenated (CAS: 827-52-1)	8h	Not establishedmg/m ³
	8h	Not establishedppm
	Short	Not establishedmg/m ³
	Short	Not establishedppm

Notes

Inhalable fraction of dust.

DNEL

Cyclohexylbenzene (phenylcyclohexane)			
Workers / consumers	Route of exposure	Value	Effect
Workers	Inhalation	2.35 mg/kg	Chronic effects systemic
Workers	Dermal	0.666 mg/kg bw/day	Chronic effects systemic
Workers	Dermal	0.2 mg/cm ²	Chronic effects local
Workers	Inhalation	Not establishedmg/m ³	Chronic effects local
Consumers	Dermal	0.333 mg/kg bw/day	Chronic effects systemic
Consumers	Dermal	0.333 mg/cm ²	Chronic effects local

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Consumers	Inhalation	25 mg/m ³	Chronic effects local
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PNEC

Cyclohexylbenzene (phenylcyclohexane)	
Route of exposure	Value
Freshwater environment	Not established µg/l
Marine water	0.2 µg/l
Freshwater sediment	0.191 mg/kg of dry substance of sediment
Sea sediments	0.0191 mg/kg of dry substance of sediment
Soil (agricultural)	0.038 mg/kg of dry substance of soil

8.2. Exposure controls

Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

EN166 - Personal Eye Protection Standard.

Skin protection

Hand protection: Protective gloves resistant to the product. Contaminated skin should be washed thoroughly.

Respiratory protection

Aerosol or fog formation: filter device (full mask or mouthpiece set) with filter: A2, A2/P2, Abek

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2. Collect spillage.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	data not available
color intensity	light
Odour	specific
Melting point/freezing point	>3 - 5 °C (est.)
Boiling point or initial boiling point and boiling range	243 °C
Flammability	data not available
Lower and upper explosion limit	data not available
Flash point	104 °C (Cleveland
Auto-ignition temperature	Open Cup)
Decomposition temperature	351 °C (ASTM E659)
pH	data not available
Kinematic viscosity	data not available
Solubility in water	2.04 mm ² /s at 40 °C
Partition coefficient n-octanol/water (log value)	insoluble
Vapour pressure	>>4 (cyclohexylbenzene)
Density and/or relative density	0.003 kPa (0.03 hPa) at 20 °C
Density	
Relative vapour density	934 g/cm ³ at 20 °C
Particle characteristics	data not available

9.2. Other information

data not available

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not available

SECTION 10: Stability and reactivity

10.1. Reactivity

This material is non-reactive under normal environmental conditions.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

No toxicological data is available for the substance. Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time.

Acute toxicity

Based on available data the classification criteria are not met.

Cyclohexylbenzene (phenylcyclohexane)					
Route of exposure	Parameter	Value	Exposure time	Species	Sex
Oral	LD50	>10000 mg/kg		Rat (Rattus norvegicus)	
Inhalation (dust/mist)	LC50	>5 mg/l		Rat (Rattus norvegicus)	
Dermal	LD50	>2000 mg/kg		Rabbit	

Skin corrosion/irritation

No data available for the substance. Based on available data the classification criteria are not met.

Serious eye damage/irritation

No data available for the substance. Based on available data the classification criteria are not met.

Respiratory or skin sensitisation

No data available for the substance. Based on available data the classification criteria are not met.

Germ cell mutagenicity

No data available for the substance. Based on available data the classification criteria are not met.

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Carcinogenicity

No data available for the substance. Based on available data the classification criteria are not met.

Reproductive toxicity

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

No data available for the substance. Based on available data the classification criteria are not met.

Aspiration hazard

No data available for the substance. Based on available data the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption for humans.

Other information

not available

SECTION 12: Ecological information

12.1. Toxicity

May be fatal if swallowed and enters airways. Very toxic to aquatic life with long lasting effects.

Acute toxicity

Cyclohexylbenzene (phenylcyclohexane)					
Parameter	Method	Value	Exposure time	Species	Environment
EC50		> 1 mg/l	Not established	Daphnia (Daphnia magna)	
EC50		56 mg/l	96 hours	Algae (Selenastrum capricornutum)	
LC50		> 1000 mg/l	96 hours	Fish	
NOELR	OECD 211	1 mg/l	21 days	Algae (Selenastrum capricornutum)	

12.2. Persistence and degradability

The following data are available.

Biodegradability

Cyclohexylbenzene (phenylcyclohexane)				
Parameter	Value	Exposure time	Environment	Result
				Very bioaccumulative, Very persistent

12.3. Bioaccumulative potential

The following data are available.

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Cyclohexylbenzene (phenylcyclohexane)

Parameter	Value	Exposure time	Species	Environment	Temperature [°C]
	700-5200				

12.4. Mobility in soil

Based on available data the classification criteria are not met. Does not contain any PMT or vPvM components.

Cyclohexylbenzene (phenylcyclohexane)

Parameter	Value
	3.71

12.5. Results of PBT and vPvB assessment

Based on available data the classification criteria are not met. Does not contain vPvB components.

12.6. Endocrine disrupting properties

Based on available data the classification criteria are not met. Does not contain any components that may cause endocrine disruption in the environment.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Law on the placing on the market, return and high-quality recycling of packaging (Packaging Act - VerpackG) of June 9th, 2021, valid from January 1st, 2022. Ordinance on the European List of Waste (German Waste Catalogue Ordinance -Verordnung über das Europäische Abfallverzeichnis - AVV). Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

SECTION 14: Transport information

14.1. UN number or ID number

UN 3082

14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cyclohexylbenzene)

14.3. Transport hazard class(es)

9 Miscellaneous dangerous substances and articles

14.4. Packing group

III

14.5. Environmental hazards

Gewässergefährdend

14.6. Special precautions for user

Reference in the Sections 4 to 8.

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14.7. Maritime transport in bulk according to IMO instruments

not relevant

Additional information

Hazard identification No.

90

UN number

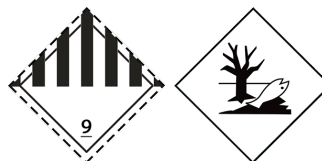
3082

Classification code

M6

Safety signs

9+hazardous for the environment



Road transport - ADR

Special provisions

274, 335, 375, 601

Limited quantities

5 L

Excepted quantities

E1

Packaging

Packing instructions

P001, IBC03, LP01, R001

Special packing provisions

PP1

Mixed packing provisions

MP19

Portable tanks and bulk containers

Guidelines

T4

Special provisions

TP1, TP29

ADR tank

Tank code

LGBV

Vehicles for tank carriage

AT

Transport category

3

Tunnel restriction code

(-)

Special provision for

packages

V12

loading, unloading and handling

CV13

Railway transport - RID

Special provisions

274, 335, 375, 601

Packaging

Packing instructions

P001, IBC03, LP01, R001

Special packing provisions

PP1

Mixed packing provisions

MP19

Portable tanks and bulk containers

Guidelines

T4

Special provisions

TP1, TP29

RID Tanks

Tank code

LGBV

Transport category

3

Special provision for

packages

W12

loading, unloading and handling

CW13

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Air transport - ICAO/IATA

Packaging instructions for limited amount Y964

Packaging instructions passenger 964

Cargo packaging instructions 964

Marine transport - IMDG

EmS (emergency plan) F-A, S-F

SECTION 15: Regulatory information

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

REACH - Candidate list of substances of very high concern for authorisation (Article 59). Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer
Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants
Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
E2

TA Luft

Total dust:

Not applicable

Particulate inorganic substances:

Not applicable

Vaporous or gaseous inorganic substances:

Not applicable

Organic substances:

Not applicable

Carcinogenic substances:

Not applicable

Mutagenic:

Not applicable

Toxic for reproduction:

Not applicable

Volatile organic compounds

Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

Not applicable

TA Luft (Germany)

5.2.5; organic substances Class I; $\geq 25\%$ by weight; 0.1 kg/h 20 mg/m^3 ; the mass flow 0.50 kg/h or the mass concentration 50 mg/m^3 , each indicated as total carbon, must not be exceeded in total (except for dusty organic substances)

5.2.7.2 poorly degradable, easily enriched and highly toxic organic substances; $\geq 25 \text{ wt.}\%$; in compliance with the emission minimization requirement

National regulations (Germany)

WGK Water hazard class:

WGK 2 - obviously hazardous to water

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15.2. Chemical safety assessment

A chemical safety assessment has been carried out for this substance by the supplier.

More information

The components of this product are listed on the following inventories:

DSL

All components of this product are on the Canadian DSL Inventory

AIIC

On the Inventory or in compliance with the Inventory

ISHL

On the Inventory or in compliance with the Inventory

KECI

On the Inventory or in compliance with the Inventory

PICCS

On the Inventory or in compliance with the Inventory

IECSC

On the Inventory or in compliance with the Inventory

TCSI

On the Inventory or in compliance with the Inventory

TSCA

All substances are listed as active on the TSCA Inventory

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

H304; H400; H410 May be fatal if swallowed and enters airways. Very toxic to aquatic life with long lasting effects.

Guidelines for safe handling used in the safety data sheet

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P331 Do NOT induce vomiting.

P501 Dispose of contents/container to be handed over to the person authorized to dispose of waste or by returning to the supplier.

Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

ADR European agreement concerning the international carriage of dangerous goods by road

AGW Occupational Exposure Limits

Aquatic Chronic Hazardous to the aquatic environment (chronic)

BCF Bioconcentration Factor

CAS Chemical Abstracts Service

CLP Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures

EC Identification code for each substance listed in EINECS

EC50 Concentration of a substance when it is affected 50 % of the population

EINECS European Inventory of Existing Commercial Chemical Substances

EmS Emergency plan

EU European Union

EuPCS European Product Categorisation System

IATA International Air Transport Association

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IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC50	Lethal concentration of a substance in which it can be expected death of 50% of the population
LD50	Lethal dose of a substance in which it can be expected death of 50% of the population
log Kow	Octanol-water partition coefficient
MAK	Maximum workplace concentration
NOEL	No observed effect level
NOELR	No Observed Effect Loading Rate
OEL	Occupational Exposure Limits
PBT	Persistent, bioaccumulative and toxic
PMT	Persistent, mobile and toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail
UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very persistent and very bioaccumulative
vPvM	Very persistent and very mobile

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

More information

Classification procedure - calculation method.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.