SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006

Thermal HS

Version number: 3.0
Issued: 2023-12-21
Replaces SDS: 2020-10-13

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

1.1. Product identifier

Trade name

Thermal HS

Article No.

5L: 8940103 10L: 8940102

REACH registration number

not relevant (mixture)

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

Relevant identified uses

Tempering fluid
Working temperature range: +50...-+250°C

1.3. Details of the supplier of the safety data sheet

Supplier

JULABO GmbH

Address
Gerhard-Juchheim-Straße 1
77960 Seelbach
Germany

Telephone
+49(0)782351-180

Email
service.de@julabo.com

Web site
www.julabo.com

1.4. Emergency telephone number

+49(0)89-19240 (24h)

Available outside office hours

Yes

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Hazardous to the aquatic environment — Chronic hazard category 3

Hazard statements

H412

2.2. Label elements

Hazard statements

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.

2.3. Other hazards

Not Classified as PBT/vPvB by current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
2-Ethylhexanoic acid, iron salt	19583-54-1 243-169-8 01-2120796720-47-xxxx -	0.2 - 0.25%	Acute Tox. 4 - oral, Repr. 2	H302, H361d - -	-
octamethylcyclotetrasiloxane; [D4]	556-67-2 209-136-7 01-2119529238-36 014-018-00-1	0.05 - 0.1%	Repr. 2, Aquatic Chronic 1	H361f, H410 - M-chro=10	SVHC

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.
SVHC = Substance of Very High Concern.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take off immediately all contaminated clothing. Place unconscious person on the side in the recovery position and ensure breathing can take place. Do not give victim anything to drink if he is unconscious. Remove the casualty from the danger zone.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position.

Skin contact

Promptly remove any clothing that becomes wet or contaminated. Gently wash with plenty of soap and water. In case of rashes, wounds or other skin disorders: Seek medical attention and bring along these instructions.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

None known.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2). Alcohol resistant foam. Water spray, fog or mist. Use dry powder, dry sand or dry earth to extinguish.

Unsuitable extinguishing media

Water full jet

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon monoxide (CO). Carbon dioxide (CO2). Formaldehyde.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Use air-supplied respirator during fire fighting. Dike and collect extinguishing water. Do not discharge into drains, water courses or onto the ground. Fire residues and contaminated water must be disposed of in accordance with official regulations. In case of fire, toxic gases may be formed.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

In case of spills, beware of slippery floors and surfaces. Warn everybody of potential hazards and evacuate if necessary. Use air-supplied respirator during fire fighting.

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Dike and collect extinguishing water. Dike and collect extinguishing water.

6.3. Methods and material for containment and cleaning up

Sewers must be covered and basements and workpits evacuated. Absorb spillage with suitable absorbent material. Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

6.4. Reference to other sections

Hazardous combustion products: See section 5. For personal protection, see section 8. Incompatible materials: See section 10.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Store in tightly closed original container in a dry, cool and well-ventilated place. Do not breathe gas, fume, vapours or spray. Local exhaust is recommended. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges.

General hygiene

Avoid inhalation of vapours/spray and contact with skin and eyes. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep only in original packaging. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. D07.261188620

7.3. Specific end use(s)

None known.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
2-Ethylhexanoic acid, iron salt (19583-54-1/243-169-8)	DNEL	Chronic (long term) Inhalation	0.64 mg/m³	Workers	Systemic
2-Ethylhexanoic acid, iron salt (19583-54-1/243-169-8)	DNEL	Chronic (long term) Dermal	0.36 mg/kg bw/day	Workers	Systemic
2-Ethylhexanoic acid, iron salt (19583-54-1/243-169-8)	DNEL	Chronic (long term) Inhalation	0.16 mg/m³	Consumers	Systemic
2-Ethylhexanoic acid, iron salt (19583-54-1/243-169-8)	DNEL	Chronic (long term) Dermal	0.18 mg/kg bw/day	Consumers	Systemic
2-Ethylhexanoic acid, iron salt (19583-54-1/243-169-8)	DNEL	Chronic (long term) Oral	0.18 mg/kg bw/day	Consumers	Systemic
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	DNEL	Chronic (long term) Inhalation	73 mg/m³	Workers	Systemic
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	DNEL	Chronic (long term) Inhalation	73 mg/m³	Workers	Local
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	DNEL	Chronic (long term) Inhalation	13 mg/m³	Consumers	Systemic
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	DNEL	Chronic (long term) Inhalation	13 mg/m³	Consumers	Local
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	DNEL	Chronic (long term) Oral	3.7 mg/kg bw/day	Consumers	Systemic

PNEC/PEC

Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Freshwater	1.5 µg/l
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Marine water	0.15 µg/l
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Sewage Treatment Plant	10 mg/l
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Sediment (freshwater)	3 mg/kg

Product/Substance name (CAS No./EC No.)	Type	Environmental compartment	Value
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Sediment (marine water)	0.3 mg/kg
octamethylcyclotetrasiloxane; [D4] (556-67-2/209-136-7)	PNEC	Soil	0.54 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the use of appropriate work procedures take precedence over the use of personal protective equipment. Personal protective equipment shall be used if the risks cannot be avoided or sufficiently limited by collective technical means of protection or by work organisation measures, methods or procedures. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Open windows and doors to provide sufficient ventilation. If this is not possible, increase air exchange by using ventilation.

Personal Protective Equipment Symbols

Eye / face protection

Wear tight-fitting goggles or face shield.

Hand protection

Wear protective gloves. Butyl rubber gloves are recommended. Nitrile gloves are recommended. Other types of gloves can be recommended by the glove supplier.

Respiratory protection

Normally no personal respiratory protection necessary In case of insufficient ventilation or risk of inhalation of vapours, wear suitable respiratory protective equipment with combination filter (type A/P2).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Brownish.

Odour

Slight odour.

Odour threshold

Not determined.

Melting point / freezing point

< -60 °C

Boiling point or initial boiling point and boiling range
> 300 °C

Flammability
Not determined.

Lower and upper explosion limit
Not determined.

Flash point
> 250 °C
Method
ISO 2592

Auto-ignition temperature
> 400 °C

Decomposition temperature
Not determined.

pH
Not applicable.

Kinematic viscosity
~ 50 mm^2/s
Method
(20°C)

Solubility
Not soluble in water.

Partition coefficient n-octanol/water
Not determined.

Vapour pressure
Not determined.

Density and/or relative density
~ 0.97 g/cm^3
Method
(20C°)

Relative vapour density
No information available.

Particle characteristics
Not relevant.

9.2. Other information
No additional information is available.

SECTION 10: Stability and reactivity

10.1. Reactivity
Avoid contact with strong oxidisers.

10.2. Chemical stability
Avoid contact with strong oxidisers.

10.3. Possibility of hazardous reactions
None known.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
Strong oxidising agents.

10.6. Hazardous decomposition products
Measurements have shown that at temperatures above approx. 150°C a small amount of formaldehyde is split off by oxidative degradation.

SECTION 11: Toxicological information

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

Acute toxicity

Product / Substance name CAS / EC no.	Value / Dose	Exposure route	Method / Guideline
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	1.300 mg/kg	Oral	Acute toxicity estimate ATE (Oral)
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	> 5.000 mg/kg	Oral	Acute toxicity estimate ATE (Oral)
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	> 2.000 mg/kg	Dermal	Acute toxicity estimate ATE (Dermal)

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species	Method / Guideline	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	-	-	-	-	The criteria for categorisation in this hazard class are not met.

Product / Substance name CAS / EC no.	Result	Duration of exposure	Species	Method / Guideline	Other
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	No skin irritation	24 hours	Rabbit	OECD test guideline 404	-

Serious eye damage/irritation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	-	-	-	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	No eye irritation	Rabbit	OECD test guideline 405	-

Respiratory or skin sensitisation

Product / Substance name CAS / EC no.	Result	Species	Method / Guideline	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	-	-	-	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	No skin sensitizer	Guinea Pig	OECD Test Guideline 406	-

Germ cell mutagenicity

Product / Substance name CAS / EC no.	Result	Exposure route	Species	Method / Guideline	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	-	-	-	-	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	Negative.	inhalative	Rat	OECD test guideline 475	-

Product / Substance name CAS / EC no.	Result	Exposure route	Species	Method / Guideline	Other
octamethylcyclotet-rasiloxane; [D4] 556-67-2 / 209-136-7	Negative.	Oral	Rat	OECD test guideline 478	-

Carcinogenicity

Product / Substance name CAS / EC no.	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	There are no data available.

Reproductive toxicity

Product / Substance name CAS / EC no.	Result	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	-	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	Suspected of damaging fertility.	-

STOT-single exposure

Product / Substance name CAS / EC no.	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	The criteria for categorisation in this hazard class are not met.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	There are no data available.

STOT-repeated exposure

Product / Substance name CAS / EC no.	Other
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	The criteria for categorisation in this hazard class are not met.

Product / Substance name CAS / EC no.	Other
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	There are no data available.

Aspiration hazard
Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties
None known.

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity
According to 1272/2008/EC: Harmful to aquatic life with long lasting effects.

Product / Substance name CAS / EC no.	Value / Result	Duration of exposure	Endpoint of the test	Species	Remark
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	75 mg/l	21 Tage	EC50	aquatic invertebrates	-
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	10 µg/l	14 days	LC50	Fish	Based on available data, up to the maximum solubility of the product, no classification-relevant effects on aquatic organisms are expected. on aquatic organisms are to be expected. According to current experience, no adverse effects in sewage treatment plants are expected. The material is not harmful to aquatic organisms (LC50/EC50/IC50/LL5

Product / Substance name CAS / EC no.	Value / Result	Duration of exposure	Endpoint of the test	Species	Remark
					0/EL50 > 100 mg/L for the most sensitive species). species). Conclusion by analogy.
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	>15 µg/l	21 days	EC50	aquatic invertebrates	Based on available data, up to the maximum solubility of the product, no classification-relevant effects on aquatic organisms are expected. on aquatic organisms are to be expected. According to current experience, no adverse effects in sewage treatment plants are expected. The material is not harmful to aquatic organisms (LC50/EC50/IC50/LL50/EL50 > 100 mg/L for the most sensitive species). species). Conclusion by analogy.

Chronical toxicity

Product / Substance name CAS / EC no.	Value / Result	Duration of exposure	Endpoint of the test	Species
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	10 µg/l	14 days	LC50	Fisch
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	> 15 µg/l	21 days	EC50	aquatic invertebrates

12.2. Persistence and degradability

Persistence and degradability

Degradability of components of the mixture

Product / Substance name CAS / EC no.	Type of test	Duration	Result	Remark
2-Ethylhexanoic acid, iron salt 19583-54-1 / 243-169-8	DOC reduction	28 days	99%	-
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	-	29 days	3,7 %	ECHA

12.3. Bioaccumulative potential

Bioaccumulative potential

Product / Substance name CAS / EC no.	LogKow / LogPow	Bioconcentration factor (BCF)
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	6,488 (25,1°C) / -	12.400

12.4. Mobility in soil

Mobility

No data available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

Octamethylcyclotetrasiloxane (D4) meets the current criteria of Annex XIII of the EU REACH Regulation for PBT and vPvB and has been placed on the Candidate List of Substances of Very High Concern (SVHCs). D4 does not behave not comparable to the known PBT/vPvB substances. According to the interpretation of the available data the silicone industry's interpretation of the available data, the scientific evidence from field trials does not essentially does not indicate that D4 is not biomagnifying in aquatic and terrestrial food chains. D4 in the air decomposes through naturally occurring processes in the atmosphere. It is not expected that non D4 residues in air that do not decompose in this way are not expected to be deposited in water, soil or living organisms. become deposited.

Product / Substance name CAS / EC no.	PBT / vPvB
octamethylcyclotetrasiloxane; [D4] 556-67-2 / 209-136-7	Octamethylcyclotetrasiloxane (D4) meets the current criteria of Annex XIII of the EU REACH Regulation for PBT and vPvB and has been placed on the Candidate List of Substances of Very High Concern (SVHCs). D4 does not behave not comparable to the known PBT/vPvB substances. According to the interpretation of the available data the silicone industry's interpretation of the available data, the scientific evidence from field trials does not essentially

Product / Substance name CAS / EC no.	PBT / vPvB
	does not indicate that D4 is not biomagnifying in aquatic and ter restrial food chains. D4 in the air decomposes through naturally occurring processes in the atmo-sphere. It is not expected that non D4 residues in air that do not decompose in this way are not expec-ted to be deposited in water, soil or living organisms. become deposited.

12.6. Endocrine disrupting properties

no ingredient is listed ≥ 0.1 %

12.7. Other adverse effects

Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Disposal in accordance with official regulations Do not allow runoff to sewer, waterway or ground. Avoid release to the environment. The assignment of the waste code number/waste designation is to be carried out in accordance with the EWC on a sector- and process-specific basis.

Packaging

Completely emptied packaging can be recycled. Contaminated packaging shall be treated in the same way as the substance.

SECTION 14: Transport information

14.1. UN number

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.3. Transport hazard class(es)

Label

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.4. Packing group

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.5. Environmental hazards

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.6. Special precautions for user

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

14.7. Maritime transport in bulk according to IMO instruments

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/AND/RID).

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1907/2006 (REACH), 1272/2008 (CLP) as amended.
The product is subject to REACH Regulation (EC) 1907/2006 Annex XVII No. 3
Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS): Not listed.
Ordinance on Persistent Organic Pollutants (POPs): Not listed.

National regulations

D15.261203910 D15.261183960
LGK according to TRGS 510: D07.261188620

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Changes to previous revision

Revision of all sections and change of layout

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
ATE - Acute Toxicity Estimate
C&L - Classification and Labelling
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CMR - Carcinogen, Mutagen, or Reproductive Toxicant
CSR - Chemical Safety Report
DMEL - Derived Minimum Effect Level
DNEL - Derived No Effect Level
EC50 - Half Maximal Effective Concentration
ECHA - European Chemicals Agency
GHS - Globally Harmonized System
IATA - International Air Transport Association
IMDG - International Maritime Dangerous Goods
Kow - octanol-water partition coefficient
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
LoW - List of Wastes
OEL - Occupational Exposure Limit
PBT - Persistent, Bioaccumulative and Toxic substance
PEC - Predicted Environmental Concentration
PNEC - Predicted No Effect Concentration(s)

REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SCBA - Self-Contained Breathing Apparatus
STOT - Specific Target Organ Toxicity
SVHC - Substances of Very High Concern
UFI - Unique Formula Identifier
vPvB - Very Persistent and Very Bioaccumulative

Phrase meaning
Aquatic Chronic 3 - Hazardous to the aquatic environment — Chronic hazard category 3
Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4
Repr. 2 - Reproductive toxicity, hazard category 2
Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1
H302 Harmful if swallowed.
H361d Suspected of damaging the unborn child.
H361f Suspected of damaging fertility.
H410 Very toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.