

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOLTHERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

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

1.1 Product identifier

Trade name	FRAGOLTHERM W-ECO
Registration number (REACH)	not relevant (mixture)
Unique formula identifier (UFI)	UQ00-7096-U00T-4V51

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

Relevant identified uses	Heat transfer fluid Kälteträgerflüssigkeit Professional use Industrial use
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1.3 Details of the supplier of the safety data sheet

FRAGOL AG
Solinger Straße 16
D-45481 Mülheim
Germany

Telephone: +49 (0)208-300 02-50
Telefax: +49 (0)208-300 02-33
e-mail: htf@fragol.de
Website: www.fragol.de

e-mail (competent person) htf@fragol.de

1.4 Emergency telephone number

Emergency information service	+49 (0)208-300 02-50 This number is only available during the following office hours: Mon-Fri 09:00 - 17:00
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Poison centre		
Country	Name	Telephone
Germany	Giftnotruf der Charité - Universitätsmedizin Berlin	+49 (0)30 30686 700 (Tag und Nacht)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.10	acute toxicity (oral)	4	Acute Tox. 4	H302
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
3.9	specific target organ toxicity - repeated exposure	2	STOT RE 2	H373

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

2.2 Label elements

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- signal word

Warning

- pictograms

GHS07, GHS08



- hazard statements

H302

Harmful if swallowed.

H319

Causes serious eye irritation.

H373

May cause damage to organs (kidney) through prolonged or repeated exposure (if swallowed).

- precautionary statements

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

P264

Wash hands thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P280

Wear eye protection/face protection.

P301+P312

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314

Get medical advice/attention if you feel unwell.

P337+P313

If eye irritation persists: Get medical advice/attention.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

- hazardous ingredients for labelling

ethanediol

2.3 Other hazards

Of no significance.

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

The product does not contain any other ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the product and hence require reporting in this section.

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
ethanediol	CAS No 107-21-1 EC No 203-473-3 Index No 603-027-00-1 REACH Reg. No 01-2119456816- 28-xxxx	≥ 90	Acute Tox. 4 / H302 STOT RE 2 / H373		GHS-HC IOELV

Safety Data Sheet


acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
potassium 2-ethylhexanoate	CAS No 3164-85-0 EC No 221-625-7 REACH Reg. No 01-2119980714- 29-xxxx 01-2119989496- 14-xxxx	1 - < 3	Skin Irrit. 2 / H315 Eye Dam. 1 / H318 Repr. 2 / H361d		

Notes

GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)
IOELV: Substance with a community indicative occupational exposure limit value

Name of substance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
ethanediol	CAS No 107-21-1 EC No 203-473-3	-	-	500 mg/kg	oral

Remarks

For full text of H-phrases: see SECTION 16. All the percentages given are percentages by weight unless stated otherwise.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician.

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap.

Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER/doctor.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. IF SWALLOWED: Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Headache. Vomiting. Drowsiness. Dizziness. Death following aspiration. Respiratory symptoms such as haemoptysis. Central nervous system depression. Nausea. Disorientation.

4.3 Indication of any immediate medical attention and special treatment needed

For specialist advice physicians should contact the poison centre.

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOLTHERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water mist, Dry extinguishing powder, Carbon dioxide (CO₂), Foam

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂), During fire hazardous fumes/smoke could be produced

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Self-contained breathing apparatus (EN 133). Standard protective clothing for firefighters.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety. Ventilate affected area.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.).

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas. Do not breathe mist/vapours. Take precautionary measures against static discharge.

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- incompatible substances or mixtures

Observe hints for combined storage.

Control of effects

Protect against external exposure, such as

Heat, High temperatures, Static discharges

Consideration of other advice

Store in a well-ventilated place. Keep container tightly closed.

- general rule

Keep out of reach of children.

- ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted.

7.3 Specific end use(s)

There is no additional information.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Notation	Source
DE	ethanediol	107-21-1	AGW	10	26	20	52	va, H, Y	TRGS 900
EU	ethylene glycol	107-21-1	IOELV	20	52	40	104		2000/39/EC

Notation

H	absorbed through the skin
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)
va	as vapours and aerosols
Y	a risk of developmental toxicity does not need to be expected if the occupational exposure limit value and the biological limit value (BGW) are adhered to

Relevant DNELs/DMELs/PNECs and other threshold levels

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
ethanediol	107-21-1	DNEL	35 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
ethanediol	107-21-1	DNEL	106 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
ethanediol	107-21-1	DNEL	7 mg/m ³	human, inhalatory	consumer (private households)	chronic - local effects
ethanediol	107-21-1	DNEL	53 mg/kg bw/day	human, dermal	consumer (private households)	chronic - systemic effects
potassium 2-ethylhexanoate	3164-85-0	DNEL	41,98 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
potassium 2-ethylhexanoate	3164-85-0	DNEL	5,95 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
potassium 2-ethylhexanoate	3164-85-0	DNEL	10,35 mg/m ³	human, inhalatory	consumer (private households)	chronic - systemic effects
potassium 2-ethylhexanoate	3164-85-0	DNEL	2,98 mg/kg bw/day	human, dermal	consumer (private households)	chronic - systemic effects
potassium 2-ethylhexanoate	3164-85-0	DNEL	2,98 mg/kg bw/day	human, oral	consumer (private households)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
ethanediol	107-21-1	PNEC	10 mg/l	aquatic organisms	water	intermittent release
ethanediol	107-21-1	PNEC	10 mg/l	aquatic organisms	freshwater	short-term (single instance)
ethanediol	107-21-1	PNEC	1 mg/l	aquatic organisms	marine water	short-term (single instance)
ethanediol	107-21-1	PNEC	199,5 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
ethanediol	107-21-1	PNEC	37 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
ethanediol	107-21-1	PNEC	3,7 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
ethanediol	107-21-1	PNEC	1,53 mg/kg	terrestrial organisms	soil	short-term (single instance)
potassium 2-ethylhexanoate	3164-85-0	PNEC	0,36 mg/l	aquatic organisms	freshwater	short-term (single instance)
potassium 2-ethylhexanoate	3164-85-0	PNEC	0,036 mg/l	aquatic organisms	marine water	short-term (single instance)
potassium 2-ethylhexanoate	3164-85-0	PNEC	0,493 mg/l	aquatic organisms	water	intermittent release
potassium 2-ethylhexanoate	3164-85-0	PNEC	71,7 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
potassium 2-ethylhexanoate	3164-85-0	PNEC	6,37 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
potassium 2-ethylhexanoate	3164-85-0	PNEC	0,637 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
potassium 2-ethylhexanoate	3164-85-0	PNEC	1,06 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggles with side protection (EN 166).

Skin protection

Protective clothing (EN 340 & EN ISO 13688).

- hand protection



Wear suitable gloves. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Chemical protection gloves are suitable, which are tested according to EN 374.

- type of material

PVC: polyvinyl chloride, NR: natural rubber, latex, Nitrile rubber

- material thickness

Use gloves with a minimum material thickness: $\geq 0,38$ mm.

- breakthrough times of the glove material

Use gloves with a minimum breakthrough times of the glove material: >480 minutes (permeation: level 6).

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Full face mask/half mask/quarter mask (EN 136/140).

Environmental exposure controls

Take appropriate precautions to avoid uncontrolled release into the environment. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	mild
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	180 °C calculated value, referring to a component of the mixture
Flammability	this material is combustible, but will not ignite readily

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOLTHERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Lower and upper explosion limit	LEL: 2,7 vol% UEL: 19 vol% calculated value, referring to a component of the mixture
Flash point	122 °C calculated value, referring to a component of the mixture
Auto-ignition temperature	not determined
Decomposition temperature	no data available
pH (value)	8 (25 °C)
Kinematic viscosity	not determined

Solubility(ies)

Water solubility	miscible in any proportion
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Partition coefficient n-octanol/water (log value)	this information is not available
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Vapour pressure	not determined
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Density	1,11 kg/l at 20 °C
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Relative vapour density	>1 (air = 1)
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Particle characteristics	not relevant (liquid)
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9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
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Other safety characteristics

Miscibility	Completely miscible with water.
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SECTION 10: Stability and reactivity

10.1 Reactivity

May react with strong acids and strong oxidizing agents such as chlorate, nitrates, peroxides, etc.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

Not applicable

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Harmful if swallowed.

- acute toxicity estimate (ATE)

Exposure route	ATE
Oral	526,3 mg/kg

- acute toxicity of components of the mixture

Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
ethanediol	107-21-1	oral	500 mg/kg

Acute toxicity of components of the mixture					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
ethanediol	107-21-1	oral	LD50	7.712 mg/kg	rat
ethanediol	107-21-1	dermal	LD50	>3.500 mg/kg	mouse
potassium 2-ethylhexanoate	3164-85-0	oral	LD50	2.043 mg/kg	rat
potassium 2-ethylhexanoate	3164-85-0	dermal	LD50	>2.000 mg/kg	rat

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

May cause damage to organs (kidney) through prolonged or repeated exposure (if swallowed).

Hazard category	Target organ	Exposure route
2	kidney	if swallowed

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Other information

This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings. 2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

11.2 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
ethanediol	107-21-1	LC50	>72.860 mg/l	fish	96 h
ethanediol	107-21-1	EC50	>100 mg/l	aquatic invertebrates	48 h
ethanediol	107-21-1	ErC50	<13.000 mg/l	algae	96 h
ethanediol	107-21-1	NOEC	>100 mg/l	algae	72 h
potassium 2-ethylhexanoate	3164-85-0	LC50	>100 mg/l	fish	96 h
potassium 2-ethylhexanoate	3164-85-0	ErC50	49,3 mg/l	algae	72 h
potassium 2-ethylhexanoate	3164-85-0	growth rate (Er-Cx) 10%	32 mg/l	algae	72 h

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Aquatic toxicity (chronic) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
ethanediol	107-21-1	LC50	>1.500 mg/l	fish	28 d
ethanediol	107-21-1	EC50	>15.000 mg/l	aquatic invertebrates	21 d
ethanediol	107-21-1	NOEC	≥1.000 mg/l	aquatic invertebrates	23 d
ethanediol	107-21-1	growth (EbCx) 20%	>1.995 mg/l	microorganisms	30 min
potassium 2-ethylhexanoate	3164-85-0	EC50	75 mg/l	aquatic invertebrates	21 d
potassium 2-ethylhexanoate	3164-85-0	NOEC	25 mg/l	aquatic invertebrates	21 d
potassium 2-ethylhexanoate	3164-85-0	LOEC	63 mg/l	aquatic invertebrates	21 d
potassium 2-ethylhexanoate	3164-85-0	growth (EbCx) 10%	71,7 mg/l	microorganisms	17 h

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment.

Waste treatment of containers/packages

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Relevant provisions relating to waste

List of wastes, Decision 2000/532/EC on the list of waste

According to the European Waste Catalog (EWC), waste code numbers are not product-related but application-related. Waste code numbers should be issued by the waste disposer, if possible in consultation with the waste disposal authorities

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

SECTION 14: Transport information

14.1	UN number or ID number	not subject to transport regulations
14.2	UN proper shipping name	not assigned
14.3	Transport hazard class(es)	none
14.4	Packing group	not assigned
14.5	Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6	Special precautions for user	There is no additional information.
14.7	Maritime transport in bulk according to IMO instruments	Not applicable.

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - additional information

not assigned

International Maritime Dangerous Goods Code (IMDG) - additional information

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR) - additional information

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

Name	Name acc. to inventory	Restriction	No
FRAGOL THERM W-ECO	this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC	R3	3

Legend

R3

- Shall not be used in:
 - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ash-trays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
- Articles not complying with paragraph 1 shall not be placed on the market.
- Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
 - can be used as fuel in decorative oil lamps for supply to the general public, and,
 - present an aspiration hazard and are labelled with R65 or H304,
- Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
- Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
 - lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
 - grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
 - lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
- No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
- Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Legend

December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

None of the ingredients are listed.

Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

Water Framework Directive (WFD)

None of the ingredients are listed.

Regulation 98/2013/EU on the marketing and use of explosives precursors

None of the ingredients are listed.

National regulations (Germany)

Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV)

Wassergefährdungsklasse, WGK 1 slightly hazardous to water
(water hazard class)

Technical instructions on air quality control (Germany)

Number	Group of substances	Class	Conc.	Mass flow	Mass concentration	Notation
5.2.5	organic substances		≥ 25 wt%	0,5 kg/h	50 mg/m ³	3)

Notation

3) a total mass flow of 0.50 kg/h or a total mass concentration of 50 mg/m³, each of which to be indicated as total carbon, shall not be exceeded (except organic particulate matter)

Storage of hazardous substances in non-stationary containers (TRGS 510) (Germany)

Storage class (LGK) 10-13 (other combustible and non-combustible substances)

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)
1.2	Relevant identified uses: Coolant Anti-freeze product Industrial use	Relevant identified uses: Heat transfer fluid Kälteträgerflüssigkeit Professional use Industrial use
3.2		Mixtures: change in the listing (table)

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Section	Former entry (text/value)	Actual entry (text/value)
8.2	Respiratory protection: In case of inadequate ventilation wear respiratory protection.	Respiratory protection: In case of inadequate ventilation wear respiratory protection. Full face mask/half mask/quarter mask (EN 136/140).
8.2	Environmental exposure controls: Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.	Environmental exposure controls: Take appropriate precautions to avoid uncontrolled release into the environment. Keep away from drains, surface and ground water.
9.1	Boiling point or initial boiling point and boiling range: 180 °C	Boiling point or initial boiling point and boiling range: 180 °C calculated value, referring to a component of the mixture
9.1	Lower and upper explosion limit: 2,7 vol% - 19 vol%	Lower and upper explosion limit: LEL: 2,7 vol% UEL: 19 vol% calculated value, referring to a component of the mixture
9.1	Flash point: 122 °C	Flash point: 122 °C calculated value, referring to a component of the mixture
9.1	Decomposition temperature: not relevant	Decomposition temperature: no data available
9.1	Partition coefficient	
9.1	Density and/or relative density	
9.1	Particle characteristics: no data available	Particle characteristics: not relevant (liquid)
9.2	Other information: There is no additional information.	Other information
16		Abbreviations and acronyms: change in the listing (table)

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
AGW	Workplace exposure limit
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Abbr.	Descriptions of used abbreviations
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LEL	Lower explosion limit (LEL)
LGK	Lagerklasse (storage class according to TRGS 510, Germany)
LOEC	Lowest Observed Effect Concentration
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
SVHC	Substance of Very High Concern
TRGS	Technische Regeln für Gefahrstoffe (technical rules for hazardous substances, Germany)
TRGS 900	Arbeitsplatzgrenzwerte (TRGS 900)

Safety Data Sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)

FRAGOL

FRAGOL THERM W-ECO

Version number: 3.0
Replaces version of: 2020-12-11 (2)

Revision: 2021-03-16

Abbr.	Descriptions of used abbreviations
TWA	Time-weighted average
UEL	Upper explosion limit (UEL)
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2020/878/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs (kidney) through prolonged or repeated exposure (if swallowed).

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product. FRAGOL cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.