

Safety Data Sheet

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

FRAGOL

FRAGOL THERM DPO

Version number: 4.0
Replaces version of: 2020-05-20 (3)

Revision: 2020-05-28

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

1.1 Product identifier

Trade name **FRAGOL THERM DPO**
Registration number (REACH) not relevant (mixture)

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

Relevant identified uses Heat transfer fluid
Professional use
Industrial use
Uses advised against Do not use for private purposes (household)

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

| Poison centre | | |
|----------------|---|---|
| Country | Name | Telephone |
| United Kingdom | National Poisons Information Service (NPIS) (medical professionals only) | 0344-8920111 |
| United Kingdom | NHS (general public) | non-emergency: 111 or a doctor; emergency: 999 |

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 |
|---------|---|----------|---------------------------|------------------|
| 3.1I | acute toxicity (inhal.) | 4 | Acute Tox. 4 | H332 |
| 3.2 | skin corrosion/irritation | 2 | Skin Irrit. 2 | H315 |
| 3.3 | serious eye damage/eye irritation | 2 | Eye Irrit. 2 | H319 |
| 3.8R | specific target organ toxicity - single exposure (respiratory tract irritation) | 3 | STOT SE 3 | H335 |
| 4.1C | hazardous to the aquatic environment - chronic hazard | 1 | Aquatic Chronic 1 | H410 |

For full text of abbreviations: see SECTION 16.

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The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

Additional information

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

2.2 Label elements

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

- signal word Warning

- pictograms

GHS07, GHS09



- hazard statements

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

- precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- hazardous ingredients for labelling # Biphenyl, Flake

2.3 Other hazards

Special danger of slipping by leaking/spilling product.

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 | Specific Conc. Limits | M-Factors |
|-------------------|---|---------|---|------------|-------|-----------------------|-----------|
| Diphenyl ether | CAS No 101-84-8 EC No 202-981-2 REACH Reg. No 01- 2119472545 -33-xxxx | 70 – 75 | Eye Irrit. 2 / H319 Aquatic Acute 1 / H400 Aquatic Chronic 3 / H412 | | IOELV | | |

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| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes | Specific Conc. Limits | M-Factors |
|-------------------|--|---------|---|--|------------|-----------------------|-----------|
| biphenyl | CAS No 92-52-4 EC No 202-163-5 Index No 601-042-00-8 REACH Reg. No 01- 2119480408 -33-xxxx | 25 – 30 | Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410 |   | GHS- HC | | |

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

Remarks

For full text of Hazard- and EU Hazard-statements: 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. Call a POISON CENTER/doctor.

Following skin contact

Take off contaminated clothing. After contact with skin, 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 immediately and drink plenty of water. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Observe aspiration hazard if vomiting occurs.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. For specialist advice physicians should contact the poison centre.

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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, Alcohol resistant foam, Dry extinguishing powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

During fire hazardous fumes/smoke could be produced. Carbon monoxide (CO). Carbon dioxide (CO₂).

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. Wear suitable protective clothing and gloves.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

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

Wipe up with absorbent material (e.g. cloth, fleece).

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.

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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. Keep away from sources of ignition - No smoking. Use only in well-ventilated areas. Take precautionary measures against static discharge.

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

- flammability hazards

Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge.

- incompatible substances or mixtures

Keep away from oxidizing substances. Keep away from reducing substances.

Control of effects

Protect against external exposure, such as

Heat. High temperatures. UV-radiation/sunlight. Static discharges.

Consideration of other advice

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

- ventilation requirements

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

- specific designs for storage rooms or vessels

- storage temperature

Recommended storage temperature: 15 – 25 °C

- packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

Heat transfer fluids.

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 |
| EU | diphenyl ether | 101-84-8 | IOELV | 1 | 7 | 2 | 14 | | 2017/164/EU |
| GB | diphenyl ether | 101-84-8 | WEL | 1 | 7 | 2 | 14 | | EH40/2005 |
| GB | aromatics | 92-52-4 | WEL | | 500 | | | | EH40/2005 |

Notation

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)

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Notation

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)

Relevant DNELs/DMELs/PNECs and other threshold levels

No data available.

| 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 |
| Diphenyl ether | 101-84-8 | DNEL | 59 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| Diphenyl ether | 101-84-8 | DNEL | 7 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Diphenyl ether | 101-84-8 | DNEL | 14 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |
| Diphenyl ether | 101-84-8 | DNEL | 25 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| biphenyl | 92-52-4 | DNEL | 11.17 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |
| biphenyl | 92-52-4 | DNEL | 63 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |
| biphenyl | 92-52-4 | DNEL | 3.3 mg/m ³ | human, inhalatory | consumer (private households) | chronic - systemic effects |
| biphenyl | 92-52-4 | DNEL | 38 mg/kg bw/day | human, dermal | consumer (private households) | chronic - systemic effects |
| biphenyl | 92-52-4 | DNEL | 1.9 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 |
| Diphenyl ether | 101-84-8 | PNEC | 0 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Diphenyl ether | 101-84-8 | PNEC | 0 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Diphenyl ether | 101-84-8 | PNEC | 10 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Diphenyl ether | 101-84-8 | PNEC | 0.093 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Diphenyl ether | 101-84-8 | PNEC | 0.009 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Diphenyl ether | 101-84-8 | PNEC | 0.018 mg/kg | terrestrial organisms | soil | short-term (single instance) |
| biphenyl | 92-52-4 | PNEC | 0.017 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| biphenyl | 92-52-4 | PNEC | 0.002 mg/l | aquatic organisms | marine water | short-term (single instance) |
| biphenyl | 92-52-4 | PNEC | 10 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |

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| Relevant PNECs of components of the mixture | | | | | | |
|---|---------|-----------|-----------------|-----------------------|---------------------------|------------------------------|
| Name of substance | CAS No | End-point | Threshold level | Organism | Environmental compartment | Exposure time |
| biphenyl | 92-52-4 | PNEC | 2.69 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| biphenyl | 92-52-4 | PNEC | 0.269 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| biphenyl | 92-52-4 | PNEC | 0.528 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 goggle with side protection (EN 166).

Skin protection

Protective clothing against liquid chemicals. Wear protective clothing for protection against heat and flame.

- hand protection



Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. 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. 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.

- type of material

Nitrile

- material thickness

use gloves with a minimum material thickness: 0,4 mm

- breakthrough times of the glove material

Use gloves with a minimum breakthrough times of the glove material: >30 minutes (permeation: level 2).

- other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Breathing apparatus only in case of aerosol or mist formation.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

| | |
|----------------|--------------------|
| Physical state | liquid |
| Colour | colourless - clear |
| Odour | not determined |

Other safety parameters

| | |
|---|-----------------------------------|
| pH (value) | not determined |
| Melting point/freezing point | 12 °C |
| Initial boiling point and boiling range | 257 °C |
| Flash point | 110 °C (DIN EN ISO 2719) |
| Evaporation rate | not determined |
| Flammability (solid, gas) | not relevant (fluid) |
| Vapour pressure | 0.02 mmHg at 25 °C |
| Density | 1.064 g/cm ³ at 20 °C |
| Vapour density | this information is not available |

Solubility(ies)

| | |
|--------------------|--------------------|
| - water solubility | 0.025 g/l at 25 °C |
|--------------------|--------------------|

Partition coefficient

| | |
|-----------------------------|-------------|
| - n-octanol/water (log KOW) | 4.2 (20 °C) |
|-----------------------------|-------------|

| | |
|---------------------------|--------|
| Auto-ignition temperature | 621 °C |
|---------------------------|--------|

Viscosity

| | |
|-----------------------|----------------------------------|
| - kinematic viscosity | 2.48 mm ² /s at 40 °C |
|-----------------------|----------------------------------|

| | |
|----------------------|------|
| Explosive properties | none |
|----------------------|------|

| | |
|----------------------|------|
| Oxidising properties | none |
|----------------------|------|

9.2 Other information

There is no additional information.

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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

There is no additional information.

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 toxicological effects

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 inhaled.

| Acute toxicity | | | |
|-----------------------|----------|---------------|---------|
| Exposure route | Endpoint | Value | Species |
| oral | LD50 | 2,050 mg/kg | rat |
| dermal | LD50 | >5,010 mg/kg | rat |
| inhalation: dust/mist | LC50 | >2.66 mg/l/4h | rat |

- acute toxicity of components of the mixture

| Acute toxicity of components of the mixture | | | | | |
|---|----------|--------------------|----------|---------------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| Diphenyl ether | 101-84-8 | dermal | LD50 | >7,940 mg/kg | rabbit |
| biphenyl | 92-52-4 | oral | LD50 | 2,180 – 5,040 mg/kg | rat |
| biphenyl | 92-52-4 | dermal | LD50 | >5,010 mg/kg | rabbit |
| biphenyl | 92-52-4 | inhalation: vapour | LC50 | >3.47 mg/l/1h | rat |

Skin corrosion/irritation

Causes skin irritation. May cause slight irritation.

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Serious eye damage/eye irritation

Causes serious eye irritation. May cause slight 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.

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

| Aquatic toxicity (acute) | | | |
|--------------------------|----------|---|---------------|
| Endpoint | Value | Species | Exposure time |
| LC50 | 24 mg/l | fathead minnow (<i>Pimephales promelas</i>) | 48 h |
| LC50 | 7.6 mg/l | rainbow trout (<i>Oncorhynchus mykiss</i>) | 96 h |
| LC50 | 1.3 mg/l | algae | 72 h |
| EC50 | 2.4 mg/l | daphnia magna | 48 h |

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|----------|----------|-----------|---|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Diphenyl ether | 101-84-8 | LC50 | 10 mg/l | fish | 24 h |
| Diphenyl ether | 101-84-8 | EC50 | 2.92 mg/l | aquatic invertebrates | 24 h |
| Diphenyl ether | 101-84-8 | ErC50 | 0.58 mg/l | algae | 72 h |
| Diphenyl ether | 101-84-8 | NOEC | 3.2 mg/l | fish | 96 h |
| biphenyl | 92-52-4 | EC50 | 1.3 mg/l | algae | 72 h |
| biphenyl | 92-52-4 | EC50 | 0.78 mg/l | microalga (<i>Pseudokirchnerella subcapitata</i>) | 72 h |
| biphenyl | 92-52-4 | EC50 | 46.3 mg/l | bacteria | 96 h |
| biphenyl | 92-52-4 | LC50 | 3 mg/l | fish | 96 h |

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Aquatic toxicity (chronic) of components of the mixture

| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
|-------------------|----------|----------|------------|-----------------------|---------------|
| Diphenyl ether | 101-84-8 | LC50 | 10 mg/l | fish | 24 h |
| Diphenyl ether | 101-84-8 | EC50 | >100 mg/l | microorganisms | 3 h |
| Diphenyl ether | 101-84-8 | NOEC | 0.76 mg/l | aquatic invertebrates | 24 h |
| biphenyl | 92-52-4 | NOEC | 0.229 mg/l | fish | 87 d |
| biphenyl | 92-52-4 | LOEC | 0.332 mg/l | fish | 87 d |

12.2 Persistence and degradability

Information on this property is not available.

Degradability of components of the mixture

| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
|-------------------|----------|------------------|------------------|------|--------|----------|
| Diphenyl ether | 101-84-8 | oxygen depletion | 64 % | 5 d | | ECHA |
| biphenyl | 92-52-4 | biotic/abiotic | 70 % | 28 d | | Supplier |
| biphenyl | 92-52-4 | oxygen depletion | 66 % | 14 d | | ECHA |

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture

| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
|-------------------|----------|-------|---------------|----------|
| Diphenyl ether | 101-84-8 | 196 | 4.21 (25 °C) | |
| biphenyl | 92-52-4 | 1,900 | 4.008 (25 °C) | |

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 Other adverse effects

Data are not available.

Endocrine disrupting potential

The mixture contains substance(s) with an endocrine disrupting potential.

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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/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself.

Relevant provisions relating to waste

List of wastes

For this product, no waste code number can be defined according to the European Waste List (EAK), as only the intended use by the consumer permits allocation. The waste code number shall be determined in accordance with the European waste list (Commission Decisions 200/532 / EC and 2001/118 / EC) in consultation with the waste disposal / manufacturer / authority

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.

SECTION 14: Transport information

| | | |
|------|--|---|
| 14.1 | UN number | 3082 |
| 14.2 | UN proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |
| | Technical name (Hazardous ingredients) | Diphenyl ether, biphenyl |
| 14.3 | Transport hazard class(es) | |
| | Class | 9 (environmentally hazardous) |
| 14.4 | Packing group | III (substance presenting low danger) |
| 14.5 | Environmental hazards | hazardous to the aquatic environment |
| | Environmentally hazardous substance (aquatic environment) | Diphenyl ether, biphenyl |
| 14.6 | Special precautions for user | |
| | Provisions for dangerous goods (ADR) should be complied within the premises. | |
| 14.7 | Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| | Not applicable. | |

Information for each of the UN Model Regulations

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

| | |
|----------------------|---|
| UN number | 3082 |
| Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |
| Class | 9 |
| Classification code | M6 |
| Packing group | III |
| Danger label(s) | 9, fish and tree |



| | |
|-----------------------|--|
| Environmental hazards | yes (hazardous to the aquatic environment) |
|-----------------------|--|

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| | |
|-------------------------------|--------------------|
| Special provisions (SP) | 274, 335, 375, 601 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| Transport category (TC) | 3 |
| Tunnel restriction code (TRC) | - |
| Hazard identification No | 90 |
| Emergency Action Code | 3Z |

International Maritime Dangerous Goods Code (IMDG)

| | |
|----------------------|---|
| UN number | 3082 |
| Proper shipping name | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. |
| Class | 9 |
| Marine pollutant | yes (hazardous to the aquatic environment) |
| Packing group | III |
| Danger label(s) | 9, fish and tree |



| | |
|--------------------------|---------------|
| Special provisions (SP) | 274, 335, 969 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 5 L |
| EmS | F-A, S-F |
| Stowage category | A |

International Civil Aviation Organization (ICAO-IATA/DGR)

| | |
|-----------------------|---|
| UN number | 3082 |
| Proper shipping name | Environmentally hazardous substance, liquid, n.o.s. |
| Class | 9 |
| Environmental hazards | yes (hazardous to the aquatic environment) |
| Packing group | III |
| Danger label(s) | 9, fish and tree |



| | |
|--------------------------|-----------------|
| Special provisions (SP) | A97, A158, A197 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 30 kg |

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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

None of the ingredients are listed.

| Name | Name acc. to inventory | CAS No | Type of registration | No |
|------------------|--|--------|-------------------------|----|
| FRAGOL THERM DPO | this product meets the criteria for classification in accordance with Regulation No 1272/2008/EC | | 1907/2006/EC annex XVII | 3 |

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 |
| E1 | environmental hazards (hazardous to the aquatic environment, cat. 1) | 100 | 200 | 56) |

Notation

56) hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

| List of pollutants (WFD) | | | | |
|--------------------------|---|--------|-----------|---------|
| Name of substance | Name acc. to inventory | CAS No | Listed in | Remarks |
| biphenyl | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment | | A) | |

Legend

A) Indicative list of the main pollutants

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) |
|---------|---------------------------|--|
| 2.1 | | Classification according to Regulation (EC) No 1272/2008 (CLP): change in the listing (table) |
| 2.2 | | - precautionary statements: change in the listing (table) |
| 3.2 | | Mixtures: change in the listing (table) |

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| Section | Former entry (text/value) | Actual entry (text/value) |
|---------|--|---|
| 8.1 | | Relevant DNELs of components of the mixture: change in the listing (table) |
| 8.1 | | Relevant PNECs of components of the mixture: change in the listing (table) |
| 11.1 | | Acute toxicity: change in the listing (table) |
| 11.1 | | Acute toxicity of components of the mixture: change in the listing (table) |
| 12.1 | | Aquatic toxicity (acute) of components of the mixture: change in the listing (table) |
| 12.1 | | Aquatic toxicity (chronic) of components of the mixture: change in the listing (table) |
| 12.2 | | Degradability of components of the mixture: change in the listing (table) |
| 12.3 | | Bioaccumulative potential of components of the mixture: change in the listing (table) |
| 14.2 | Technical name (Hazardous ingredients): Diphenyl ether, biphenyl; diphenyl | Technical name (Hazardous ingredients): Diphenyl ether, biphenyl |
| 14.5 | Environmentally hazardous substance (aquatic environment): Diphenyl ether, biphenyl; diphenyl | Environmentally hazardous substance (aquatic environment): Diphenyl ether, biphenyl |
| 15.1 | | List of pollutants (WFD): change in the listing (table) |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|-----------------|---|
| 2017/164/EU | Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU |
| 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) |
| Aquatic Acute | Hazardous to the aquatic environment - acute hazard |
| Aquatic Chronic | Hazardous to the aquatic environment - chronic hazard |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| 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 |
| COD | Chemical oxygen demand |
| 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 |

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| 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) |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| 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 |
| LOEC | Lowest Observed Effect Concentration |
| log KOW | n-Octanol/water |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| 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 |
| 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 SE | Specific target organ toxicity - single exposure |
| TWA | Time-weighted average |
| vPvB | Very Persistent and very Bioaccumulative |

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| Abbr. | Descriptions of used abbreviations |
|-------|------------------------------------|
| WEL | Workplace exposure limit |

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 2015/830/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 |
|------|---|
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

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.