

SAFETY DATA SHEET



OXFILM 351

11260A

Version / Revision

4

Revision Date

06-May-2020

Supersedes Version

3.00

Issuing date

15-May-2020

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

1.1. Product identifier

Identification of the substance/preparation

OXFILM 351

Chemical Name

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate)

CAS-No

94-28-0

EC No.

202-319-2

Registration number (REACH)

01-2119475524-34

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

Identified uses

coalescent agent

Uses advised against

None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking Identification

OQ Chemicals GmbH
Rheinpromenade 4A
D-40789 Monheim
Germany

Product Information

Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 671 (UK) available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Based on present data no classification and labelling is required according to Directive 1272/2008/EC and its amendments (CLP Regulation)

2.2. Label elements

Not required.

2.3. Other hazards

None known

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic

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(PBT), nor very persistent nor very bioaccumulating (vPvB)

SECTION 3: Composition / information on ingredients

3.1. Substances

| Component | CAS-No | REACH-No | 1272/2008/EC | Concentration (%) |
|---|---------|------------------|--------------|-------------------|
| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) | 94-28-0 | 01-2119475524-34 | - | > 97 |

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms

None known.

Special hazard

None known.

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

General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

foam, dry chemical, carbon dioxide (CO₂), water spray

Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

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Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO₂)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapours are heavier than air and may spread along floors

5.3. Advice for firefighters

Special protective equipment for firefighters

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting

Cool containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures

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When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care.

Unsuitable material

None known

Temperature class

T2

7.3. Specific end use(s)

coalescent agent

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits Egypt

No exposure limits established.

Exposure limits Israel

No exposure limits established.

Exposure limits South Africa

No exposure limits established.

Exposure limits United Arab Emirates

No exposure limits established.

Exposure limits Kuwait

No exposure limits established.

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Occupational Exposure Controls

8.2. Exposure controls

Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

| | |
|----------------------------|------------------------------|
| Suitable material | nitrile rubber |
| Reference substance | Di-(2-ethylhexyl)-phthalate |
| Evaluation | according to EN 374: level 6 |
| Glove thickness | approx 0,55 mm |
| Break through time | > 480 min |

| | |
|----------------------------|------------------------------------|
| Suitable material | polyvinylchloride / nitrile rubber |
| Reference substance | Di-(2-ethylhexyl)-phthalate |
| Evaluation | according to EN 374: level 6 |
| Glove thickness | approx 0,9 mm |
| Break through time | > 480 min |

Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection

Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH, EN or other applicable national standards.

Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

SECTION 9: Physical and chemical properties

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9.1. Information on basic physical and chemical properties

| | |
|---------------------------|---|
| Appearance | liquid |
| Colour | colourless |
| Odour | fruity mild |
| Odour threshold | No data available |
| pH | No data available |
| Melting point/range | -70 °C |
| Boiling point/range | 340 - 351 °C @ 1013 hPa |
| Flash point | 196 °C @ 1013 hPa |
| Method | ISO 2719 |
| Evaporation rate | No data available |
| Flammability (solid, gas) | Does not apply, the substance is a liquid |
| Lower explosion limit | 0,46 Vol % |
| Upper explosion limit | No data available |

Vapour pressure

| Values [hPa] | Values [kPa] | Values [atm] | @ °C | @ °F | Method |
|--------------|--------------|--------------|------|------|--------|
| < 0,001 | < 0,0001 | < 0,001 | 20 | 68 | EU A.4 |

Vapour density No data available

Relative density

| Values | @ °C | @ °F | Method |
|--------|------|------|-----------|
| 0,967 | 20 | 68 | DIN 51757 |

Solubility 1,53 mg/l @ 20 °C, in water, OECD 105

log Pow 6,1 (measured), OECD 117

Autoignition temperature 365 °C

Method DIN 51794

Decomposition temperature No data available

Viscosity 16,4 mPa*s @ 20 °C

Method dynamic, DIN 51562, ASTM D445

Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties

9.2. Other information

| | |
|-------------------|---|
| Molecular weight | 402,56 |
| Molecular formula | C22 H42 O6 |
| log Koc | 4,36 OECD 121 |
| Conductivity | 0,68 µS/m @ 20 °C |
| Refractive index | 1,444 @ 20 °C |
| Surface tension | 45,8 mN/m (1,375 mg/l @ 20°C), OECD 115 |

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

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Stable under recommended storage conditions. Thermal decomposition can take place above 250°C.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Ingestion, Eye contact, Skin contact

| Acute toxicity | | | | |
|--|----------|-------------------------------|------------------|----------|
| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | | | |
| Routes of Exposure | Endpoint | Values | Species | Method |
| Oral | LD50 | > 2000 mg/kg | rat, female | OECD 420 |
| Dermal | LD50 | > 2000 mg/kg | rat, male/female | OECD 402 |
| Inhalative | LC50 | > 2000 mg/m ³ (4h) | rat, male | OECD 403 |

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Assessment

Based on available data, the classification criteria are not met for:

Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity
STOT SE

Irritation and corrosion

| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | | | |
|--|---------|----------------------|----------|----|
| Target Organ Effects | Species | Result | Method | |
| Skin | rabbit | Mild skin irritation | OECD 404 | 4h |
| Eyes | rabbit | Mild eye irritation | OECD 405 | |

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Assessment

Based on available data, the classification criteria are not met for:

skin irritation/corrosion
eye irritation/corrosion
For respiratory irritation, no data are available

Sensitization

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| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | | | |
|--|------------|-----------------|----------|--|
| Target Organ Effects | Species | Evaluation | Method | |
| Skin | mouse | not sensitizing | OECD 429 | |
| Skin | guinea pig | not sensitizing | OECD 406 | |

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Assessment

Based on available data, the classification criteria are not met for:

Skin sensitization

For respiratory sensitization, no data are available

| Subacute, subchronic and prolonged toxicity | | | | |
|--|--------------------------------------|------------------|----------|------------|
| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | | | |
| Type | Dose | Species | Method | |
| Subacute toxicity | NOAEL: 5000 ppm | rat, male/female | OECD 422 | Oral |
| Subacute toxicity | NOAEC: 1000 mg/m ³ (14 d) | rat, male | OECD 403 | Inhalation |
| Subchronic toxicity | NOAEL: 120 mg/kg/d (90d) | rat, female | OECD 408 | Oral |

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Assessment

Based on available data, the classification criteria are not met for:

STOT RE

| Carcinogenicity, Mutagenicity, Reproductive toxicity | | | | | |
|--|-------------------|---------------------------------|------------------------|------------------------------------|----------------|
| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | | | | |
| Type | Dose | Species | Evaluation | Method | |
| Mutagenicity | | Salmonella typhimurium | negative | OECD 471 (Ames) | In vitro study |
| Mutagenicity | | mouse lymphoma cells | negative | OECD 476 (Mammalian Gene Mutation) | In vitro study |
| Mutagenicity | | human lymphocytes | negative | OECD 473 (Chromosomal Aberration) | In vitro study |
| Reproductive toxicity | NOAEL: 5000 ppm | rat, parental | | OECD 422, Oral | |
| Reproductive toxicity | NOAEL: 15000 ppm | rat, 1. Generation, male/female | | OECD 422, Oral | |
| Developmental Toxicity | NOAEL 300 mg/kg/d | rat | Maternal toxicity | OECD 414, Oral | |
| Developmental Toxicity | NOAEL 300 mg/kg/d | rat | Developmental toxicity | OECD 414, Oral | |
| Carcinogenicity | No data available | | | | |

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

Evaluation

In vitro tests did not show mutagenic effects

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Animal testing did not show any effects on fertility
No developmental effects in the absence of maternal toxicity
No cancer study was conducted

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Target Organ Systemic Toxicant - Single exposure

Based on available data, the classification criteria are not met for:
STOT SE

Target Organ Systemic Toxicant - Repeated exposure

Based on available data, the classification criteria are not met for:
STOT RE

Aspiration toxicity

no data available

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
<http://echa.europa.eu/information-on-chemicals/registered-substances>.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0)

| Species | Exposure time | Dose | Method |
|--------------------------------------|---------------|------------------------------------|------------------|
| Pimephales promelas (fathead minnow) | 96h | LC50: > 97 mg/l | |
| Danio rerio (Zebra fish) | 96h | LC0: > 78 mg/l | 84/449/EEC C.1 |
| Daphnia magna (Water flea) | 96h | EC50: > 97 mg/l | Mobility |
| Desmodesmus subspicatus | 72h | EC50: > 55,9 mg/l (Growth rate) | 84/449/EEC C.3 |
| Mysidopsis bahia | 48h | LC50: > 1,8 mg/l | EPA/600/4-90/027 |
| Pseudomonas putida | 5 h | EC10 : >1934 g/l | |

Long term toxicity

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0)

| Type | Species | Dose | Method |
|------------------|-------------------------|-----------------------------------|----------------|
| Aquatic toxicity | Desmodesmus subspicatus | NOEC: 27 mg/l (3d) Cell number | 84/449/EEC C.3 |

12.2. Persistence and degradability

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

Biodegradation

92 % (28 d), Readily biodegradable, BOD.

Abiotic Degradation

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0)

| Type | Result | Method |
|------------|-------------------|--------|
| Hydrolysis | No data available | |
| Photolysis | No data available | |

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12.3. Bioaccumulative potential

| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | |
|--|-------------------|--------------------|
| Type | Result | Method |
| log Pow | 6,1 | measured, OECD 117 |
| BCF | No data available | |

12.4. Mobility in soil

| 2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate) (94-28-0) | | |
|--|---|----------|
| Type | Result | Method |
| Surface tension | 45,8 mN/m @ 20 °C (68 °F) @ 1,375 mg/l | OECD 115 |
| Adsorption/Desorption | log Koc: 4,36 | OECD 121 |
| Distribution to environmental compartments | no data available | |

12.5. Results of PBT and vPvB assessment

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Other adverse effects

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

Section 14.1 - 14.6

ADR/RID

Not restricted

ADN

ADN: Container and Tanker

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Not restricted

ICAO-TI / IATA-DGR

Not restricted

IMDG

Not restricted

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code not applicable

SECTION 15: Regulatory information

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

Regulation 1272/2008, Annex VI

not listed

International Inventories

2,2'-Ethylenedioxydiethyl bis(2-ethylhexanoate), CAS: 94-28-0

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2023192 (EU)
ENCS (2)-658 (JP)
ISHL (2)-658 (JP)
KECI KE-13751 (KR)
PICCS (PH)
TSCA (US)
NZIoC-NZ May be used as single component chemical
TCSI (TW)

National regulatory information Egypt

Banned Chemicals (Unified List of Hazardous Substances, List A)

not listed

Substances Requiring Permits (Unified List of Hazardous Substances, List B)

not listed

Non-Restricted Substances (Unified List of Hazardous Substances, List C)

not listed

National regulatory information Israel

Harmful Chemicals (Hazardous Substances Law, 5753-1993, Annex 1)

not listed

Toxic Chemicals (Hazardous Substances Law, 5753-1993, Annex 2)

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not listed

Hazardous materials requiring annual testing (Labor Inspection Regs., Appendix 1)

not listed

Hazardous Substances Regulations (Classification & Exemptions)

not listed

National regulatory information South Africa

Group 1 Hazardous Substances (G.N.R 452)

not listed

National regulatory information United Arab Emirates

Prohibited and restricted imports (Ministry of Environment and Water)

not listed

For details and further information please refer to the original regulation.

SECTION 16: Other information

Abbreviations

A table of terms and abbreviations can be found under the following link:

http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

Training advice

For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage (www.chemicals.oq.com).

The annex is not required because the substance is not hazardous under REACH

Disclaimer

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End of Safety Data Sheet