GHS Safety Data Sheet

This Safety Data Sheet cancels and replaces all preceding SDS for this product.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

978880
RHUBOFIX®
dsm-firmenich product

EU Specific Identifiers:
EC No: 942-422-6
EU REACH No: 01-2120085380-59
Reaction products of ((5E)-5-ethylidenebicyclo[2.2.1]hept-2-ene and (5Z)-5-ethylidenebicyclo[2.2.1]hept-2-ene) and 2-methyl-1,3-butadiene, epoxidized

Other Identifiers:
CAS No: 41816-03-9

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

Fragrance ingredient for use in consumer products.
Not for personal use in this form or concentration.
Intended to be used in the manufacture of products for consumers.

1.3 Details of the supplier of the safety data sheet

Firmenich Grasse SAS
Parc Industriel Les Bois de Grasse
106 Avenue Louison Bobet
06130 Grasse
FRANCE
Tel: +33 (0)4 93 70 80 80

P&B.RA.EU@dsm-firmenich.com

1.4 Emergency telephone number

+44 1235 239 670 Available 24/7 (NCEC)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Environmental Hazard (chronic) - Cat. 2	H411

Additional information
Full text of listed statements : See section 16

2.2 Label elements

Hazard pictograms:



Signal Word:

Hazard Statements:

H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements:

P273	Avoid release to the environment.
P391	Collect spillage.

Hazard Inducers:

2.3 Other hazards

No data available at this time.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Chemical substance.

Contains :	**GHS Classification:**

Contains :	GHS Classification:
>= 99.0 <= 100.0% EU Specific Identifiers: N° EU REACH: 01-2120085380-59 N° EC: 942-422-6 Other Identifiers: Spiro[1,4-Methanonaphthalene-2(1h),2'-Oxirane], 3,4,4a,5,8,8a-Hexahydro-3',7-Dimethyl- N° CAS: 0041816-03-9	Environmental Hazard (chronic) - Cat. 2 [H411]

SCL/M-factor/ATE:
None

SECTION 4: FIRST-AID MEASURES

4.1 Description of first aid measures

General information:
As in all cases of potential poisoning, Obtain medical advice immediately.

In case of eye contact:
Irrigate copiously with water for at least 10 minutes. Obtain medical advice if any irritation or evidence of tissue damage persists.

In case of inhalation:
Remove the individual to fresh air and keep at rest. Obtain medical advice immediately.

In case of skin contact:
Remove contaminated clothes. Wash skin with large volumes of water.
If irritation persists, or any sign of tissue damage is apparent, obtain medical advice immediately.

In case of ingestion:
Rinse mouth with water. Obtain medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

No specific data available.

4.3 Indication of immediate medical attention and special treatment needed

No specific data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

In the event of fire, adequate extinguishers should be used. Avoid inhalation of smoke and fumes. In case of insufficient ventilation, wear suitable respiratory equipment.

5.2 Special hazard arising from the substance or mixture

No specific hazard known.

5.3 Advice for fire-fighters

No specific advice.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:
Adequate protective gloves should be worn when handling spillages. No smoking. Avoid naked flames or other potential sources of ignition (eg. electrical equipment).

Avoid skin contamination and inhalation of vapour.

Individual washing routines should be followed after any potential contact.
Ensure adequate ventilation in working areas following accidental releases.

For emergency personnel:
Apply the same recommendations as section 6.1

6.2 Environmental precautions

Do not discharge directly into drains, air, into soil or into the aquatic environment.

6.3 Methods and material for containment and cleaning up

For containment:
Any absorbent used for cleaning up spillage should be disposed promptly,accordingly to local regulation.
Gross spillages should be contained by any means, and disposal of this should be in accordance with Government Regulations.

For cleaning-up:
Spillages should be disposed of in accordance with Governmental Regulations.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes.
Wear adequate protective gloves protection and eye/face protection.
No smoking. Avoid any sources of ignition.

Avoid exposing to high temperature during processing.
Do not ingest or apply to the skin as such. Good personal washing routines should be followed.
Maintain adequate local and general ventilation where product is handled.

Protective measures
Keep strict control of dust accumulation to a minimum.Maintain adequate local and general ventilation where product is handled.Avoid any sources of ignition.

Advice on general occupational hygiene
Good personal washing routines should be followed.

7.2 Conditions for safe storage, including any incompatibilities

It is good general practice to store in closed, preferably full, containers away from heat sources, and protected from extremes of temperature. Do not re-use the empty container.
Respect generals rules for compatibility storage.

7.3 Specific end use(s)

Not available at this time.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values

Derived No Effect Level (DNEL)

DNEL Worker (dermal), systemic effects - long-term, = 3.09 mg/kg bw/day
Worker (eyes), No hazard identified.
DNEL Worker (inhalation), systemic effects - long-term, = 10.9 mg/m^3
DNEL Consumer (oral), systemic effects - long-term, = 1.11 mg/kg bw/day
DNEL Consumer (inhalation), systemic effects - long-term, = 1.92 mg/m^3
Consumer (eyes), No hazard identified.
DNEL Consumer (dermal), systemic effects - long-term, = 1.11 mg/kg bw/day

Predicted No Effect Concentration (PNEC)

PNEC Aqua (freshwater) = 0.007 mg/l
PNEC Aqua (marine water) = 0.001 mg/l

PNEC Water (intermittent release) freshwater = 0.007 mg/l
PNEC Sediment (freshwater) = 0.12 mg/kg sediment dw
PNEC Sediment (marine water) = 0.012 mg/kg sediment dw
PNEC STP = 4.46 mg/l
PNEC Soil = 0.028 mg/kg soil dw
PNEC Air No hazard identified.
PNEC Oral (secondary poisoning) No potential for bioaccumulation

8.2 Exposure controls

Avoid exposing to high temperature during processing.
Maintain adequate local and general ventilation where product is handled.

Appropriate engineering controls
Maintain adequate local and general ventilation where product is handled and dispensed.

Environmental exposure controls
Not available at this time. Minimize release to the environment.

Personal protection
Respiratory protection: Where ventilation (LEV) is inadequate to prevent any inhalation of substances, use adequate respiratory apparatus.

Hand protection: Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals. Preferred glove barrier materials: Neoprene and Nitrile. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Thickness > or = 0,2mm. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection: Adequate safety glasses should be used.

Skin protection: Wear protective clothing, overall if necessary to limit the odour contamination of personal clothing. Individual washing routines should be followed after any potential contact.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical form:	LIQUID
Colour :	COLOURLESS
Odour :	Characteristic strong odour according to the commercial description of the substance.

Melting point/freezing point (°C):	< -20 °C (OECD 102)
Boiling point or initial boiling point and boiling range (°C):	= 281 °C (OECD 103)
Flammability:	The product is not flammable.
Lower and upper explosion limit:	Not determined
Flash point:	> 100°C
Auto-ignition temperature (°C) :	= 260 °C at 99.8 to 100.5kPa (Method A15)
Decomposition temperature :	No decomposition if stored and applied as directed.
pH:	Not determined
Kinematic viscosity:	Not determined
Water solubility (20°C) :	QSAR - = 21.56 - 276.1 mg/l at 25°C (QSAR-WS)
Partition coefficient n-octanol/water (log value):	QSAR - Partition coefficient Log Kow = 2.45 - 3.85 (QSAR-LogKow)
Vapour pressure (Pa) :	VP = 0.716 Pa at 25°C (OECD 104)
Density and/or relative density:	= 1.011 at 20°C (OECD 109)
Relative vapour density:	Not determined
Particle characteristics:	Not applicable, the product is a liquid

9.2 Other information

9.2.1. Information with regard to physical hazard classes

None

9.2.2. Other safety characteristics

None

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No reaction known with water.

10.2 Chemical stability

Good stability at standard temperature.

10.3 Possibility of hazardous reactions

Not known.

10.4 Conditions to avoid

Avoid temperatures above or at least 5 °C below flash point for any flammable liquids.
Do not heat closed containers.

Avoid contact with oxidizing agents.

10.5 Incompatible materials

Not known.

10.6 Hazardous decomposition products

Contact with water or storage under recommended conditions for one year should not produce dangerous decomposition products.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

(a) acute toxicity
Acute oral toxicity (Rat, Gavage): LD50 = 3100 mg/kg
Acute dermal toxicity (Rabbit, Occlusive): LD50 > 2000 mg/kg

(b) skin corrosion/irritation
Primary Skin irritation (OECD 404 modified) (Rabbit, Occlusive): Non irritant

(c) serious eye damage/irritation
Acute Eye irritation (Rabbit, OECD 405, No washout): Non irritant

(d) respiratory or skin sensitisation
Guinea pig Maximisation test (OECD 406): Non-sensitising to skin

(e) germ cell mutagenicity
Bacterial Reverse Mutation test (Ames) (Salmonella + E. Coli, OECD 471, With and without S9, 5 strains): Non mutagenic
In vitro mammalian cell gene mutation test (Chinese hamster, V79 cells, OECD 476): Non mutagenic
In vitro Mammalian Cell Micronucleus Test (Human, OECD 487, With and without S9): Non mutagenic

(f) carcinogenicity
No data available

(g) reproductive toxicity
Combined Repeat. Dose Tox. & Reprod./Develop. Tox. Screening (Rat, OECD 422, Dietary, 28 day(s)): NOAEL = 663 mg/kg/day (Males)
NOAEL (fertility) = 760 mg/kg/day
NOAEL (development) = 760 mg/kg/day

(h) STOT-single exposure
No data available

(i) STOT-repeated exposure
No data available

(j) aspiration hazard
No data available

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

No data available

11.2.2 Other information

No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

QSAR - Alga, Growth Inhibition Test (ECOSAR): 96 h EC50 = 2.18 mg/l
QSAR - Daphnia sp. Acute Immobilisation Test (ECOSAR): 48h EC50 = 2.92 mg/l
QSAR - Fish, Acute Toxicity Test (ECOSAR): 96h LC50 = 2.35 mg/l
Activated Sludge, Respiration Inhibition Test (OECD 209): 3h EC50 = 214 mg/l
3h NOEC = 30.6 mg/l

12.2 Persistence and degradability

Ready Biodegradation - Closed Bottle Test (OECD 301D, Sludge): Non readily biodegradable (4% in 28 day(s))
Stability as a function of pH: Unstable (Estimated Half-life = 4.8 h 25°C)

12.3 Bioaccumulative potential

QSAR - Partition coefficient Log Kow = 2.45 - 3.85 (QSAR-LogKow)

12.4 Mobility in soil

QSAR - Adsorption coefficient: Log Koc = 2.099

12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Dispose of as special waste in compliance with local and national regulations. Do not dump into any sewers, on the ground, or into any body of water.

Contaminated packaging: for used, contaminated and residual materials additional evaluations may be required.

European waste disposal number: No waste code from the European waste catalog can be assigned to this product, because only the use made by the user allows this attribution. The waste code is established in consultation with waste disposal services.

SECTION 14: TRANSPORT INFORMATION

In case of accidental spillage or fire during transport, refer to instructions given under points 5, 6, 7 and 8 above.

	UNO	**Land transport (ADR/RID)**	**Sea transport (IMDG-Code)**	**Air transport (ICAO-IATA)**
14.1 UN-No:	3082	3082	3082	3082
14.2 Proper Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexahydro-3,7-dimethyl-spiro-1,4-methanonaphthalene-2,2-oxirane)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAHYDRO-3,7-DIMETHYL-SPIRO-1,4-METHANONAPHTHALENE-2,2-OXIRANE)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAHYDRO-3,7-DIMETHYL-SPIRO-1,4-METHANONAPHTHALENE-2,2-OXIRANE)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hexahydro-3,7-dimethyl-spiro-1,4-methanonaphthalene-2,2-oxirane)
14.3 Class:	9	9	9	9
14.4 Packing Group:	III	III	III	III
14.5 Environmental hazards:	Hazardous to the Environment	Hazardous to the Environment	Marine pollutant	Hazardous to the Environment
14.6 Special precautions for user:	Refer to section 7	Refer to section 7	Refer to section 7	Refer to section 7
14.7 Maritime transport in bulk according to IMO instruments:	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION

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

European Regulations
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2 Chemical Safety Assessment

Chemical Safety Assessment has been carried out.

SECTION 16: OTHER INFORMATION

Revisions
March-2025 : Version 14.0 - Updates to sections 1, 2, 3, 9, 14, 15, 16
November-2025 : Version 14.1 - Updates to sections 15, 16

Key literature references
RIFM database
REACH
Supplier information

Full text of phrases used under section 2

H411	Toxic to aquatic life with long lasting effects.

P273	Avoid release to the environment.
P391	Collect spillage.

Full text of phrases used under section 3

H411	Toxic to aquatic life with long lasting effects.

We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of dsm-firmenich, it is the user's obligation to determine conditions of safe use of the product.

Information contained in this document and related material is proprietary to dsm-firmenich. Disclosure to third parties without the prior written consent of dsm-firmenich except where required by applicable laws and regulations and/or reverse engineering are strictly prohibited.