

Safety data sheet according to 1907/2006/EC, Article 31

Printing date: 10.06.2026

Version number: 15.0

Revision date: 10.06.2026

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

· **1.1 Product identifier**

· **Trade name:** ESSENCE DE PIN

· **Product number:** 940097

· **UFI (Unique Formula Identifier):** M623-40RH-9004-S3UK

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

Relevant identified uses: formulation and distribution of the mixture, formulation and use of coatings and varnishes, inks, solvents, lubricants, agrochemicals and fragrance products

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

LES DERIVES RESINIQUES & TERPENIQUES SAS

A company of dsm-firmenich

30 rue Gambetta

CS 90023

40100 DAX

FRANCE

Tel : +33 (0)5 58 56 62 00

Email : drt.fds@dsm-firmenich.com

· **1.4 Emergency telephone numbers**

NCEC (24/24 – 7/7)

Europe: +44 1235 239670

Global / English speaking countries: +44 1865 407333

Other countries: see section 16

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008:**



GHS02 flame

Flam. Liq. 3

H226 Flammable liquid and vapour.



GHS08 health hazard

Repr. 2

H361 Suspected of damaging fertility or the unborn child.

Asp. Tox. 1

H304 May be fatal if swallowed and enters airways.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07 exclamation mark

Skin Irrit. 2

H315 Causes skin irritation.

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Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1B H317 May cause an allergic skin reaction.

· **Information concerning particular hazards for human and environment:**

Effects on human health:

if swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey for 48 hours minimum).

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008:**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms:**



GHS02 GHS07 GHS08 GHS09

· **Signal word:** Danger

· **Hazard statements:**

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H361 Suspected of damaging fertility or the unborn child.

H304 May be fatal if swallowed and enters airways.

H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements:**

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P331 Do NOT induce vomiting.

P302+P352 IF ON SKIN: Wash with plenty of soap and 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.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P501 Dispose of contents and container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:**

According to Annex XIII of REACH Regulation, the components of the mixture are not considered to be Persistent, Bioaccumulative and Toxic.

· **vPvB:**

According to Annex XIII of REACH Regulation, the components of the mixture are not considered to be very Persistent and very Bioaccumulative.

· **Determination of endocrine-disrupting properties**

The components of the mixture are not included in the list established in accordance with Article 59(1) of REACH regulation for having endocrine disrupting properties, and are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/210056 or Commission Regulation (EU) 2018/605.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description:

Mixture of terpinolene multiconstituent and terpineol multiconstituent:

terpinolene multiconstituent (EU list No. 938-945-4)

According to REACH identification rules, this product is a multiconstituent substance, consisting of the following constituents (> 10%):

- terpinolene (4-isopropylidene-1-methylcyclohexene - CAS No. 586-62-9)
- 1,4-cineole (1-isopropyl-4-methyl-7-oxabicyclo[2.2.1]heptane - CAS No. 470-67-7)
- 1,8-cineole (1,3,3-trimethyl-2-oxabicyclo[2.2.2]octane - CAS No. 470-82-6)

According to REACH, components present at less than 10% are considered as impurities.

Main impurities:

- d-limonene [(4R)isopropenyl-1-methylcyclohexene - CAS No. 5989-27-5]
- l-limonene [(4S)isopropenyl-1-methylcyclohexene - CAS No. 5989-54-8]
- alpha-terpineol (α,α,4-trimethyl-3-cyclohexene-1-methanol - CAS No. 98-55-5)
- gamma-terpinene (1-isopropyl-4-methylcyclohexa-1,4-diene - CAS No. 99-85-4)
- alpha-terpinene (1-isopropyl-4-methylcyclohexa-1,3-diene - CAS No. 99-86-5)
- camphene (2,2-dimethyl-3-methylenebicyclo[2.2.1]heptane - CAS No. 79-92-5)
- alpha-pinene (2,6,6-trimethylbicyclo[3.1.1]hept-2-ene - CAS No. 80-56-8)
- p-cymene (1-isopropyl-4-methylbenzene - CAS No. 99-87-6)

terpineol multiconstituent (EC No. 701-188-3)

According to REACH identification rules, this product is a multiconstituent substance, consisting of the following constituents (> 10%):

- (-)-alpha-terpineol [α,α,4-trimethyl-(1S)-3-cyclohexene-1-methanol - CAS No. 10482-56-1]
- (+)-alpha-terpineol [α,α,4-trimethyl-(1R)-3-cyclohexene-1-methanol - CAS No. 7785-53-7]
- gamma-terpineol [1-methyl-4-(1-methylethylidene)-cyclohexanol - CAS No. 586-81-2]

According to REACH, components present at less than 10% are considered as impurities.

Main impurities:

- cis-beta-terpineol [cis-1-methyl-4-(1-methylethenyl)-cyclohexanol - CAS No. 7299-41-4]
- trans-beta-terpineol [trans-1-methyl-4-(1-methylethenyl)-cyclohexanol - CAS No. 7299-40-3]
- 3-terpinen-1-ol [4-isopropyl-1-methylcyclohex-3-en-1-ol - CAS No. 586-82-3]
- delta-terpineol [α,α-dimethyl-4-methylene cyclohexanemethanol - CAS No. 7299-42-5]
- terpinen-1-ol-4 [1-isopropyl-4-methylcyclohex-3-en-1-ol - CAS No. 562-74-3]

"Substance terpineol multiconstituent" (constituents + impurities) forms - according to the definition of a substance under REACH - 100% of the product.

Gamma-terpinene (CAS 99-85-4) and paracymene (CAS 99-87-6) are present as impurities, at 11.11% and 4.56% respectively.

Hazardous components:

EC number: 938-945-4 Reg.nr.: 01-2119982324-34-0000	terpinolene multiconstituent	80,0%
	⚠ Flam. Liq. 3, H226; ⚠ Repr. 2, H361; ⚠ Asp. Tox. 1, H304; ⚠ Aquatic Acute 1, H400; ⚠ Aquatic Chronic 1, H410; ⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2, H319; ⚠ Skin Sens. 1B, H317	
	terpineol multiconstituent	20,0%
	⚠ Skin Irrit. 2, H315; ⚠ Eye Irrit. 2, H319	

Additional information: For the wording of the listed hazard statements refer to section 16.

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SECTION 4: First aid measures

· 4.1 Description of first aid measures

· After inhalation:

Supply fresh air. If symptoms are experienced, get medical attention.

In case of unconsciousness place patient stably in side position for transportation.

· After skin contact:

Immediately rinse with plenty of water.

Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Get medical attention if irritation or skin rash occurs.

· After eye contact:

Immediately rinse with plenty of water. Remove contact lenses, if present and easy to do. Hold eyelids apart and flush eyes with plenty of cool low-pressure water for 15 minutes. Consult an ophthalmologist.

· After swallowing:

Do NOT induce vomiting.

If the person is conscious, rinse out mouth with water.

Call for a doctor immediately.

· 4.2 Most important symptoms and effects, both acute and delayed Pulmonary effects if swallowed accidentally.

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

If swallowed accidentally, medical survey for 48 hours minimum.

SECTION 5: Firefighting measures

· 5.1 Suitable extinguishing agents

Foam

Fire-extinguishing powder

Carbon dioxide (CO₂)

· 5.2 Special hazards arising from the substance or mixture In case of fire, may release irritant and toxic fumes.

· 5.3 Advice for firefighters

· Protective equipment:

Firefighters should wear appropriate protective equipment and self-contained breathing apparatus.

· Additional information: Cool endangered receptacles with water spray.

SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment. Keep unprotected persons away.

Provide adequate ventilation.

Keep away from sources of ignition.

If ventilation is insufficient, use a breathing apparatus (filtering device with type A cartridge or insulating device with a source of fresh air independent of the ambient air).

· 6.2 Environmental precautions

Do not allow product to reach soil, waterways, drains and sewers.

Inform the relevant authorities if the product has caused environmental pollution (soil, waterways, drains or sewers).

· 6.3 Methods and material for containment and cleaning up

Small spills:

Absorb spilled liquid with inert absorbent. Collect in an appropriate container properly labelled. Close it for disposal.

Large spills:

Stop spill if it can be done without danger. Dike. Pump as much liquid as possible with an explosion-proof pump or a hand

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pump. Absorb the remaining liquid with inert absorbent. Collect in an appropriate container properly labelled. Close it for disposal. Use only non-sparking tools.

6.4 Reference to other sections

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Wear appropriate personal protective equipment. Provide adequate ventilation in the workplace.

If ventilation is insufficient, use a breathing apparatus (filtering device with type A cartridge or insulating device with a source of fresh air independent of the ambient air).

Contaminated work clothing should not be allowed out of the workplace.

Information about fire - and explosion protection:

Protect against electrostatic charges.

Use only non-sparking tools.

Protect from heat.

Keep ignition sources away.

7.2 Conditions for safe storage

If possible, store the drums or ecobulk under shelter in a cool and well ventilated place.

Keep container type drums or ecobulk tightly closed.

All equipments including ventilation systems must be equipotential and earthed.

Keep away from sources of ignition.

Protect drums or ecobulk from high heat and direct sunlight.

7.3 Specific end use(s) Only identified uses listed in section 1 are covered by exposure scenarios.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with limit values that require monitoring at the workplace:

terpenes

Austria: limit value - 8 hours = 560 mg/m³ (100 ppm)

Austria: limit value - short term = 560 mg/m³ (100 ppm)

Denmark: limit value - 8 hours = 25 ppm

Denmark: limit value - short term = 50 ppm

Sweden: limit value - 8 hours = 150 mg/m³ (25 ppm)

Sweden: limit value - short term = 300 mg/m³ (50 ppm)

Switzerland: limit value - 8 hours = 112 mg/m³ (20 ppm)

Switzerland: limit value - short term = 224 mg/m³ (40 ppm)

Impurities of terpinolene multiconstituent:

dipentene (dl-limonene - CAS 138-86-3)

Norway: limit value - 8 hours = 140 mg/m³ (25 ppm)

Sweden: limit value - 8 hours = 150 mg/m³ (25 ppm)

Sweden: limit value - short term = 300 mg/m³ (50 ppm)

d-Limonene (CAS 5989-27-5) - one of the two isomers of dipentene (CAS 138-86-3)

Finland: limit value - 8 hours = 140 mg/m³ (25 ppm)

Finland: limit value - short term = 280 mg/m³ (50 ppm)

Germany (AGS): limit value - 8 hours = 28 mg/m³ (5 ppm)

Germany (AGS): limit value - short term = 110 mg/m³ (20 ppm)

Germany (DFG): limit value - 8 hours = 28 mg/m³ (5 ppm)

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Germany (DFG): limit value - short term = 112 mg/m³ (20 ppm)

Norway: limit value - 8 hours = 140 mg/m³ (25 ppm)

Spain: limit value - 8 hours = 168 mg/m³ (30 ppm)

Switzerland: limit value - 8 hours = 40 mg/m³ (7 ppm)

Switzerland: limit value - short term = 80 mg/m³ (14 ppm)

alpha-pinene multiconstituent (common CAS 80-56-8)

Belgium: limit value - 8 hours = 20 ppm

Norway: limit value - 8 hours = 140 mg/m³ (25 ppm)

Spain: limit value - 8 hours = 113 mg/m³ (20 ppm)

Sweden: limit value - 8 hours = 150 mg/m³ (25 ppm)

Sweden: limit value - short term = 300 mg/m³ (50 ppm)

paracymene (CAS 99-87-6)

Belgium: limit value - 8 hours = 100 mg/m³ (20 ppm)

Denmark: limit value - 8 hours = 135 mg/m³ (25 ppm)

Denmark: limit value - short term = 270 mg/m³ (50 ppm)

Sweden: limit value - 8 hours = 140 mg/m³ (25 ppm)

Sweden: limit value - short term = 190 mg/m³ (35 ppm)

· DNELs

· **DNEL (Derived No-Effect Level): Workers - Long-term exposure**

terpinolene multiconstituent (EU list No. 938-945-4)

Systemic effects - inhalation: 5.12 mg/m³

Systemic effects - dermal: 1.45 mg/kg body weight/day

Local effects - dermal: 133.3 µg/cm²

terpineol multiconstituent (EC 701-188-3)

Systemic effects - inhalation: 44.8 mg/m³

Systemic effects - dermal: 6.36 mg/kg body weight/day

· **DNEL (Derived No-Effect Level): General population - Long-term exposure**

terpinolene multiconstituent (EU list No. 938-945-4)

Systemic effects - inhalation: 1.26 mg/m³

Systemic effects - dermal: 0.73 mg/kg body weight/day

Systemic effects - oral: 0.73 mg/kg body weight/day

terpineol multiconstituent (EC 701-188-3)

Systemic effects - inhalation: 7.96 mg/m³

Systemic effects - dermal: 2.69 mg/kg body weight/day

Systemic effects - oral: 2.69 mg/kg body weight/day

· PNECs

· **PNEC (Predicted No-Effect Concentration) aqua (freshwater):**

terpinolene multiconstituent (EU list No. 938-945-4) 5.2 µg/L

terpineol multiconstituent (EC 701-188-3) 12 µg/L

· **PNEC (Predicted No-Effect Concentration) aqua (marine water):**

terpinolene multiconstituent (EU list No. 938-945-4) 0.52 µg/L

terpineol multiconstituent (EC 701-188-3) 1.2 µg/L

· **PNEC (Predicted No-Effect Concentration) Sewage Treatment Plant:**

terpinolene multiconstituent (EU list No. 938-945-4) 3 mg/L

terpineol multiconstituent (EC 701-188-3) 2.57 mg/L

· **PNEC (Predicted No-Effect Concentration) sediment (freshwater):**

terpinolene multiconstituent (EU list No. 938-945-4) 0.581 mg/kg sediment dry weight

terpineol multiconstituent (EC 701-188-3) 0.263 mg/kg sediment dry weight

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- **PNEC (Predicted No-Effect Concentration) sediment (marine water):**
 terpinolene multiconstituent (EU list No. 938-945-4) 58.1 µg/kg sediment dry weight
 terpineol multiconstituent (EC 701-188-3) 0.026 mg/kg sediment dry weight
- **PNEC (Predicted No-Effect Concentration) soil:**
 terpinolene multiconstituent (EU list No. 938-945-4) 113 µg/kg soil dry weight
 terpineol multiconstituent (EC 701-188-3) 0.045 mg/kg soil dry weight
- **PNEC (Predicted No-Effect Concentration) oral:**
 terpinolene multiconstituent (EU list No. 938-945-4) 15 mg/kg food
 terpineol multiconstituent (EC 701-188-3) 16.6 mg/kg food
- **PNEC (Predicted No-Effect Concentration) aqua (intermittent releases):**
 terpinolene multiconstituent (EU list No. 938-945-4) 52 µg/L
 terpineol multiconstituent (EC 701-188-3) 120 µg/L

· **Additional information:**

This sheet is based on the current valid lists for occupational exposure limit values at the time of its preparation. The DNELs and PNECs values are derived from the chemical safety assessment conducted for REACH.

Occupational exposure limits and DNELs are health-based but they are not necessarily set in the same way. The primary duty is to comply with risk management measures which enable to limit exposures as much as possible and to be in line with exposure reference levels.

· **8.2 Exposure controls**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Immediately remove all soiled and contaminated clothing.

Avoid contact with eyes and skin.

· **Personal protective equipment**

· **Respiratory protection:**

If ventilation is insufficient, use a breathing apparatus (filtering device with type A cartridge or insulating device with a source of fresh air independent of the ambient air).

· **Hand protection**

Protective gloves resistant to chemicals (standard EN 374-1). They should be replaced regularly and if there is any indication of degradation.

· **Eye/face protection**

Safety glasses (standard EN 166).

For qualifying operations with increased risk (eg: connection/disconnection of hoses, purges, sampling, etc.) wear safety glasses (standard EN 166) AND a face shield.

· **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· **Physical state:** Liquid

· **Colour:** Yellow

· **Odour:** Pine and citrus

· **Odour threshold:** Not determined

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- **Change in condition**
- **Melting/freezing point:** Not determined
- **Boiling point or boiling range:** 150-200°C [Differential Scanning Calorimetry method (DSC)]
- **Flammability:** The mixture is ignitable
- **Flash point:** 53°C (setaflash method - closed cup)
- **Auto-ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **pH value:** Not applicable
- **Viscosity**
- **Kinematic viscosity:** < 7 mm²/s (40°C) [OECD 114 / capillary rotational viscometer method]
- **Solubility**
- **in water:** Not determined
- **Partition coefficient (n-octanol/water):** Not determined
- **Vapour pressure:** Not determined
- **Density and/or relative density**
- **Relative density:** 0.873 - 0.883 (method: oscillating densimeter method at 20°C)
- **Vapour density:** Not determined
- **Ignition temperature:** Not determined
- **Explosive properties:** The components of the mixture do not contain any chemical groups associated with explosive properties
- **Oxidising properties:** The components of the mixture do not contain any chemical groups associated with oxidizing properties
- **Evaporation rate:** Not determined
- **9.2 Other information** No other data

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No data from specific reactivity tests are available for this product or this class of product.
- **10.2 Chemical stability** Product stable under storage and handling conditions according to specifications (see section 7).
- **10.3 Possibility of hazardous reactions**
No hazardous reactions known except those with incompatible products listed in point 10.5.
- **10.4 Conditions to avoid** Keep away from any flame or source of sparks.
- **10.5 Incompatible materials**
Strong acids
Strong bases
Strong oxidising agents
Materials that react with oxygenated terpenes
- **10.6 Hazardous decomposition products** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD₅₀/LC₅₀ values relevant for classification:**
terpinolene multiconstituent

Oral	LD ₅₀	> 2 000 mg/kg (rat) (OECD 423)
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Dermal	LD ₅₀	> 2 000 mg/kg (rat) (OECD 402)
terpineol multiconstituent		
Oral	LD ₅₀	> 2 000 mg/kg (rat) (OECD 401)
Dermal	LD ₅₀	> 2 000 mg/kg (rabbit) (OECD 402)
Inhalation	LC ₅₀	> 4.76 mg/L (rat) (OECD 403)

Terpineol multiconstituent (EC 701-188-3)

No toxicity (local or systemic) was observed at the highest dose tested by inhalation (4.76 mg/L). LD₅₀ by oral route and dermal route of terpineol multiconstituent are higher than 2 000 mg/kg and no acute toxicity is expected by inhalation, at concentrations taken into account in the classification.

• Skin corrosion/irritation:

The mixture is classified as skin irritant (category 2) due to the presence of terpineol multiconstituent.

terpineol multiconstituent (EC No. 701-188-3)

Terpineol multiconstituent and alpha-terpineol (main constituent) were found to be skin irritating (category 2), in several studies conducted on rabbits according to OECD 404 Guideline.

• Serious eye damage/irritation:

The mixture is classified as eye irritant (category 2) due to the following results.

terpinolene multiconstituent (EU list No. 938-945-4)

A recent BCOP study (Bovine Corneal Opacity and Permeability assay for identifying ocular corrosives and severe irritants - OECD 437) showed however that the substance has no corrosive or highly eye irritating properties.

However, the substance was found irritant in an *in vitro* eye irritation study on human reconstructed corneal epithelium model and is therefore classified in category 2 - effects on the eye.

terpineol multiconstituent (EC No. 701-188-3)

The substance was found to be eye irritating (category 2), in a study conducted on rabbit according to OECD 405 Guideline.

• Skin sensitisation:

The mixture is classified as skin sensitiser (category 1B) due to the presence of terpinolene multiconstituent.

terpinolene multiconstituent (EU list No. 938-945-4)

The substance is classified as skin sensitiser 1B because skin sensitisation effects were observed in a murine Local Lymph Node Assay (LLNA - OECD 429).

• Mutagenicity/genotoxicity:

The components of the mixture did not show any genotoxic potential.

terpinolene multiconstituent (EU list No. 938-945-4)

Based on the results of the tests conducted with the substance, no genotoxic potential is expected:

- the substance has no mutagenic effects in an Ames test (OECD 471);
- no genotoxic effects were observed with the substance in a chromosome aberration test in human lymphocytes (OECD 473). However, an equivocal result had been obtained after exposing cells for 20 hours without metabolic activation S9. The toxicological significance of this observation was considered questionable. Therefore, an *in vitro* micronucleus test (OECD 487) was performed under similar experimental conditions (24-h exposure without metabolic activation, human lymphocytes). No biologically relevant increases in micronuclei were observed, supporting the absence of genotoxic potential;
- the substance did not induce mutagenic effects in a gene mutation test in chinese hamster cells (OECD 476).

terpineol multiconstituent (EC No. 701-188-3)

Based on the results of the tests conducted with this substance and one of its main constituents, no genotoxic potential is expected:

- terpineol multiconstituent and alpha-terpineol were not mutagenic in several Ames tests (OECD 471);
- no genotoxic effects were observed with this substance in an *in vitro* chromosome aberration test in human lymphocytes (OECD 473);
- alpha-terpineol was not mutagenic in a gene mutation test on mouse lymphoma L5178Y cells (OECD 476).

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· Carcinogenicity:

This mixture is not expected to be carcinogenic: no mutagenic effects were observed with the components of the mixture and the repeated dose toxicity study doesn't bring to light any hyperplasia or pre-neoplastic lesions.

· Reproductive toxicity:

The product is classified as Reproductive Toxicity Category 2 due to the presence of gamma-terpinene and paracymene [application of the MOCS rule – Regulation (EU) 2024/2865].

· Specific target organ toxicity - single exposure:

No specific target organ toxicity leading to classification was observed in the LD₅₀ determination studies carried out with the tested components of this product.

· Specific target organ toxicity - repeated exposure:

Available data on the components of the mixture do not lead to any classification.

terpinolene multiconstituent (EU list No. 938-945-4)

The substance is not classified based on the following available results.

A combined repeated dose and reproduction/developmental screening test was conducted on rats according to OECD Guideline No 422. Daily administration of the substance by diet for 42 days to male and unmated female rats was well tolerated at dose levels up to 438.5 mg/kg body weight/day. Only effects considered as adaptative or specific to male rats were observed.

NOAEL = 435.8 mg/kg body weight/day (higher dose tested)

terpineol multiconstituent (EC No. 701-188-3)

Available data presented below do not lead to any classification of the substance.

In a repeated dose toxicity study, daily administration of terpineol multiconstituent by gavage for 5 weeks to male and female rats was generally well tolerated at dose levels up to 750 mg/kg body weight/day.

NOAEL = 250 mg/kg (testicles)

There is strong evidence that no effects will occur when animals are exposed through a route relevant for human exposure (diet) rather than gavage.

A 90-day repeated dose toxicity study was carried out by inhalation on rat, according to OECD 413 Guideline.

Administration of the substance to male and unmated female rats, at dose levels up to 2.23 mg/L, was well tolerated and no effects were observed on the reproductive organs.

NOAEL = 2.23 mg/L

· Aspiration hazard: If swallowed accidentally, the product may enter the respiratory tract due to its low viscosity.**· Additional toxicological information:****· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):**

The substance is classified as toxic for reproduction category 2.

· 11.2 Information on other hazards**· Endocrine disrupting properties**

The components of the mixture are not included in the list established in accordance with Article 59(1) of REACH regulation for having endocrine disrupting properties, and are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/210056 or Commission Regulation (EU) 2018/605.

SECTION 12: Ecological information

· 12.1 Aquatic toxicity

The mixture is classified toxic to the aquatic life (long term, category 2) due to the presence of terpinolene multiconstituent.

terpinolene multiconstituent (EU list No. 938-945-4)

The substance is classified toxic to aquatic life based on the results below.

EC₅₀ (48 h), daphnia (*Daphnia magna*): 5.184 mg/L (nominal concentration - OECD 202)

LC₅₀ (96 h), fish (*Danio rerio*): 6.104 mg/L (nominal concentration - OECD 203)

EC₅₀ (72 h), algae (*Pseudokirchneriella subcapitata*): 5.40 mg/L (based on growth rate - measured concentration - OECD

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EC₅₀ (72 h), algae (*Pseudokirchneriella subcapitata*): 2.82 mg/L (based on yield - measured concentration - OECD 201)**· Toxicity to aquatic microorganisms:**

Sewage containing the mixture can be treated by a municipal sewage treatment plant (taking into account the 2 PNECs sewage treatment plant given in section 8).

terpinolene multiconstituent (EU list No. 938-945-4)

EC₅₀ (3 h): 178 mg/L (respiration rate - nominal concentration - activated sludge - OECD 209)

terpineol multiconstituent (EC No. 701-188-3)

No toxic effects were observed with this substance on activated sludge from a predominant domestic sewage, in a ready biodegradability study.

· Terrestrial toxicity:

Assays were conducted only on terpineol multiconstituent.

terpineol multiconstituent (EC No. 701-188-3)

LC₅₀ (14 days), earthworm (*Eisenia fetida*): 499 - 799 mg/kg soil dry weight (based on mortality - nominal concentration - OECD 207 Guideline)NOEC (14 days), earthworm (*Eisenia fetida*): 311 mg/kg soil dry weight (based on mortality - nominal concentration - OECD 207 Guideline)NOEC (14 days), earthworm (*Eisenia fetida*): 311 mg/kg soil dry weight (based on growth - nominal concentration - OECD 207 Guideline)**· 12.2 Persistence and degradability**

The mixture consists of 2 substances readily biodegradable.

terpinolene multiconstituent (EU list No. 938-945-4)

The substance is readily biodegradable.

Degradation after 28 days: 72% (oxygen consumption - OECD 301 D test - activated sludge from a domestic waste water - non adapted).

terpineol multiconstituent (EC No. 701-188-3)

The substance is readily biodegradable.

Degradation after 28 days: 80% (inorganic carbon concentration - OECD 310 Guideline - activated sludge from a domestic waste water - non adapted - 60% being surpassed within 10 days after reaching 10%).

· 12.3 Bioaccumulative potential

No accumulation in organisms is expected based on the results below.

terpinolene multiconstituent (EU list No. 938-945-4)

No measured data are available for the substance. Based on estimations using 3 different QSARs (Quantitative Structure-Activity Relationship methods) and on the value of the substance partition coefficient n-octanol/water (< 3), an accumulation in organisms is not expected.

terpineol multiconstituent (EC No. 701-188-3)

No measured data are available for the substance. Based on estimations using 3 different QSARs (Quantitative Structure-Activity Relationship methods) and on the value of the substance partition coefficient n-octanol/water (< 3), an accumulation in organisms is not expected.

· 12.4 Mobility in soil

terpinolene multiconstituent (EU list No. 938-945-4)

No measured data available.

terpineol multiconstituent (EC No. 701-188-3)

The adsorption coefficient of the substance was determined in a study conducted according to OECD 106 Guideline: 28.8 ≤ K_{oc} ≤ 50.9

Taken with the high water solubility, this value is low enough to suggest that terpineol multiconstituent will show limited adsorption to soil or sediment particulates, and with a partition mainly to water (in the surface or ground water compartments).

The product does not fulfil the criteria for PMT or vPvM classification.

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· 12.5 Results of PBT and vPvB assessment

· PBT:

According to Annex XIII of REACH Regulation, the components of the mixture are not considered to be Persistent, Bioaccumulating and Toxic.

· vPvB:

According to Annex XIII of REACH Regulation, the components of the mixture are not considered to be very Persistent and very Bioaccumulating.

· 12.6 Endocrine disrupting properties

The components of the mixture are not included in the list established in accordance with Article 59(1) of REACH regulation for having endocrine disrupting properties, and are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/210056 or Commission Regulation (EU) 2018/605.

· 12.7 Other adverse effects No data available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods National and regional regulations have to be adhered to.

· **Recommendation:** The product has to be disposed of in an authorised incinerator, according to regulation.

· Uncleaned packaging

· **Recommendation:** Packaging has to be sent to an authorised waste treatment facility, for recycling or disposal.

SECTION 14: Transport information

· 14.1 UN number or ID number

· ADR, IMDG, IATA

UN 1993

· 14.2 UN proper shipping name

· ADR

1993 FLAMMABLE LIQUID, N.O.S. (1,4-cineole, terpinolene), ENVIRONMENTALLY HAZARDOUS

· IMDG

FLAMMABLE LIQUID, N.O.S. (1,4-cineole, terpinolene), MARINE POLLUTANT

· IATA

FLAMMABLE LIQUID, N.O.S. (1,4-cineole, terpinolene)

· 14.3 Transport hazard class(es)

· ADR, IMDG



· Class

3 Flammable liquids

· Label

3

· IATA



· Class

3 Flammable liquids

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· Label	3
· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards · Marine pollutant: · Special marking (ADR):	Environmentally hazardous substance, liquid; Marine Pollutant Product contains environmentally hazardous substances: terpinolene multiconstituent Symbol (fish and tree) Symbol (fish and tree)
· 14.6 Special precautions for user · Danger code: · EMS Number:	Warning: Flammable liquids 30 F-E,S-E
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable
· Transport/Additional information:	
· ADR · Tunnel restriction code · Classification code (letter/figure)	D/E F1
· UN "Model Regulation"	UN 1993, FLAMMABLE LIQUID, N.O.S. (1,4-cineole, terpinolene), ENVIRONMENTALLY HAZARDOUS, 3, III

SECTION 15: Regulatory information

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

Regulation (EC) No 1907/2006 (REACH):

The product does not contain any of the substances included in the following lists

- Annex XIV (authorisation) / substances of very high concern (SVHC)
- Annex XVII (restrictions)

Directive 2012/18/EU:

Product fulfilling the criteria of hazard categories:

- P5c "Flammable liquids, category 3 (H226)",
- E2 "Hazardous to the Aquatic Environment in Category Chronic 2 (H411)".

· 15.2 Chemical safety assessment

A chemical safety assessment has been carried out for terpinolene multiconstituent (EU list No 938-945-4) and for terpineol multiconstituent (EC No. 701-188-3).

SECTION 16: Other information

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 DRT, A company 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 DRT, A company of dsm-firmenich. Disclosure to third parties without the prior written consent of DRT, A company of dsm-firmenich except where required by applicable laws and regulations and/or reverse engineering are strictly prohibited.

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This Safety Data Sheet is in compliance with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

· **Version:** 15.0

· **Previous version:** 14.1 of 30/01/2025

· **Emergency telephone numbers (other countries):**

NCEC - In-Country Numbers (24/24 - 7/7)

Australia: +61 2 8014 4558 / 18000 74234

Bangladesh: +65 3158 1200

China: 400 120 6011

China (Mainland): +86 532 8388 9090

Czech Republic: +420 228 882 830

Denmark: +45 8988 2286

Finland: +358 9 7479 0199

Greece: +30 21 1198 3182

India: +65 3158 1198

India: 000 800 100 7479

Indonesia: 007 803 011 0293

Japan: +81 3 4578 9341

Malaysia: +60 3 6207 4347

New Zealand: +64 9 929 1483 / 0800 446 881

Norway: +47 2103 4452

Pakistan: +65 3158 1329

Philippines: +63 2 8231 2149

Singapore: +65 3165 2217

South Africa: +27 21 300 2732

South Korea: +82 2 3479 8401

Sri Lanka: +65 3158 1195

Sweden: +46 8 566 42573

Taiwan: +886 2 8793 3212

Thailand: 001 800 120 666 751

Turkey: +90 212 375 5231

Vietnam: +84 28 4458 2388

· **Full text of H and EUH mentions indicated in section 3:**

H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H361 Suspected of damaging fertility or the unborn child.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

· **Abbreviations and acronyms:**

CLP: Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging

MOCS: More than One Constituent Substance

EC₅₀: Concentration which leads to a 50% reduction in treated organism responses compared to untreated organism responses (algae) or concentration which causes effects to 50% of the tested organisms (daphnids)

LC₅₀: Lethal concentration for 50% of exposed animals

LD₅₀: Lethal dose for 50% of animals exposed by oral or dermal route

Koc: Organic carbon/water partition coefficient. It represents the potential of retention of the substance on soil organic matter

LLNA: Local Lymph Node Assay

NOAEL: No Observed Adverse Effect Level

NOEC: No Observed Effect Concentration

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OECD: Guidelines from the Organisation for Economic Co-operation and Development
SVHC: Substances of Very High Concern
PBT: Persistent, Bioaccumulative and Toxic substance
vPvB: very Persistent and very Bioaccumulative substance
PMT: Persistent, Mobile and Toxic
vPvM: very Persistent and very Mobile
Flam. Liq. 3: Flammable liquids, Category 3
Skin Irrit. 2: Skin corrosion/irritation, Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1B: Skin sensitisation, Category 1B
Repr. 2: Reproductive toxicity – Category 2
Asp. Tox. 1: Aspiration hazard, Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

· **Sources:**

Literature and company data
REACH registration dossiers of the components of the mixture

· **Modified data compared to the previous version:**

The Safety Data Sheet has been updated in accordance with the MOCS rule. Regulation (EU) 2024/2865 of the European Parliament and of the Council of 23 October 2024 amending Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures.

Change in the classification (section 2)

Update of section 3

Update of section 6

Update of section 7

Update of section 8

Update of section 11

· **Annex:**

on request at the following address, drt.fds@dsm-firmenich.com

End of the safety data sheet

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