SAFETY DATA SHEET
according to 1907/2006/EC, article 31

Pine Oil 70 – item number 10-049

Date: April 17th. 2015

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

· **1.1 Product identifier**
Trade name: Pine Oil 70

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
Relevant identified uses: production and distribution of the substance, intermediate, industrial formulation, fragrance substance, solvent, formulation and use of coatings, inks, lubricants, flotation agents, mining chemicals, metal working fluids and agrochemicals

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**

UCY business services & trading GmbH
Address: Am Villepohl 4, 53347 Alfter
Phone: +49 228 2428 732
Fax: +49 228 2428 731
E-mail: sales@ucy-energy.com

· **1.4 Emergency telephone number**
CHEMTREC (24/24 – 7/7)
International: +1 703 527 3887
From United Kingdom (London): 0870 820 0418
Other countries: see section 16

2 Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008:**


GHS09 environment

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


GHS07

Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2	H319	Causes serious eye irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC:**


Xi; Irritant

R36/38: Irritating to eyes and skin.


Xi; Sensitising

R43: May cause sensitisation by skin contact.


N; Dangerous for the environment

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **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**


GHS07 GHS09

· **Signal word:** Warning
· **Hazard statements:**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.
· **Precautionary statements:**

P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Hazardous components responsible for classification:** Hydrocarbons, terpene processing by-products

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**
· **PBT:**
According to Annex XIII of REACH Regulation, the substances of the mixture are not considered to be Persistent, Bioaccumulating and Toxic.
· **vPvB:**
According to Annex XIII of REACH Regulation, the substances of the mixture are not considered to be very Persistent and very Bioaccumulating.

3 Composition/information on ingredients

· **3.2 Chemical characterization: Mixture**
· **Description:**
Mixture of terpenic alcohols and terpenic hydrocarbons.

Terpineol multiconstituent
Multiconstituent substance, consisting of the following main constituents (> 10%):
- (-) alpha terpineol [α,α,4-trimethyl-(1S)-3-cyclohexene-1-methanol - CAS 10482-56-1]
- (+) alpha terpineol [α,α,4-trimethyl-(1R)-3-cyclohexene-1-methanol - CAS 7785-53-7]
- gamma terpineol [1-methyl-4-(1-methylethylidene)-cyclohexanol - CAS 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 7299-41-4]
- trans beta terpineol [trans-1-methyl-4-(1-methylethenyl)-cyclohexanol - CAS 7299-40-3]
- delta terpineol [α,α-dimethyl-4-methylene cyclohexanemethanol - CAS 7299-42-5]
- 1-terpinen-4-ol [1-isopropyl-4-methylcyclohex-3-en-1-ol - CAS 562-74-3]

Hydrocarbons, terpene processing by-products
Distillation fraction obtained from terpene processing, mainly composed of hydrocarbons (terpinolene, camphene, alpha terpinene, alpha pinene, dipentene, gamma terpinene, paracymene, isoterpinolene,...) ; cineols (1,4-cineole and 1,8-cineole) and terpene alcohols (alpha terpineol, gamma terpineol,...) are also present.

· **Dangerous components:**		
	terpineol multiconstituent Xi R36/38	64 - 70%
	Skin Irrit. 2, H315; Eye Irrit. 2, H319	
CAS: 68956-56-9 EINECS: 273-309-3	hydrocarbons, terpene processing by-products Xn R65; Xi R36/38; Xi R43; N R51/53 R10	30 - 36%
	Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	

· **Additional information:**
For the wording of the listed risk phrases refer to section 16.
REACH status
Terpineol multiconstituent
Substance name according to REACH identification requirements: Reaction mass of α,α,4-trimethyl-, (1S)-, 3-cyclohexene-1-methanol and α,α,4-trimethyl-, (1R)-, 3-cyclohexene-1-methanol and 1-methyl-4-(1-methylethylidene)-cyclohexanol
Common 8000-41-7

Hydrocarbons, terpene processing by-products
Substance name: hydrocarbons, terpene processing by-products
CAS number: 68956-56-9

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** No data available.
· **4.3 Indication of any immediate medical attention and special treatment needed** No specific indications.

5 Firefighting measures

· **5.1 Suitable extinguishing agents**
Foam
Fire-extinguishing powder
Carbon dioxide (CO_2)
· **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:**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus.
· **Additional information:** Cool endangered receptacles with water spray.

6 Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear personal protective equipment. Keep unprotected persons away.
Provide adequate ventilation.
· **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 and seal in an appropriate container properly labelled 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 pump. Absorb the remaining liquid with inert absorbent. Collect and seal in an appropriate container properly labelled for disposal.
· **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **7.1 Precautions for safe handling** Wear personal protective equipment. Provide adequate ventilation.
· **Information about fire - and explosion protection:**
Protect from heat.
Keep ignition sources away.
· **7.2 Conditions for safe storage**
Store under cover in a cool well-ventilated location.
Keep container tightly sealed.
Keep away from sources of ignition.
Protect from heat and direct sunlight.
· **7.3 Specific end use(s)** Only identified uses listed in section 1 are covered by exposure scenarios.

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 = 140 mg/m³ (25 ppm)
Denmark : limit value - short term = 280 mg/m³ (50 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)
DL-limonene (dipentene - CAS 138-86-3)
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)
Germany (AGS): limit value - 8 hours = 110 mg/m³ (20 ppm)
Germany (AGS): limit value - short term = 220 mg/m³ (40 ppm)
Germany (DFG): limit value - 8 hours = 28 mg/m³ (5 ppm)
Germany (DFG): limit value - short term = 112 mg/m³ (20 ppm)
Sweden: limit value - 8 hours = 110 mg/m³ (20 ppm)
Sweden: limit value - short term = 220 mg/m³ (20 ppm)
Alpha pinene (CAS 80-56-8)
Belgium: limit value - 8 hours = 20 ppm
Sweden : limit value - 8 hours = 150 mg/m³ (25 ppm)
Sweden : limit value - short term = 300 mg/m³ (50 ppm)

· **DNEL (Derived No-Effect Level): Workers - Acute/short-term exposure**
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects – dermal: 5.0 mg/kg bw/day
Systemic effects – inhalation: 5.8 mg/m³

· **DNEL (Derived No-Effect Level): Workers - Long-term exposure**
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects – dermal: 1.17 mg/kg bw/day
Systemic effects – inhalation: 5.8 mg/m³
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Systemic effects – inhalation: 2.9 mg/m³
Systemic effects – dermal: 0.8 mg/kg bw/day

· **DNEL (Derived No-Effect Level): General population - Acute/short-term exposure**
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects - dermal: 2.5 mg/kg bw/d
Systemic effects - inhalation: 1.25 mg/m³
Systemic effects - oral: 2.5 mg/kg bw/d

· **DNEL (Derived No-Effect Level): General population - Long-term exposure**
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects - dermal: 0.42 mg/kg bw/d
Systemic effects - inhalation: 1.25 mg/m³
Systemic effects - oral: 0.42 mg/kg bw/d
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Systemic effects – inhalation: 0.7 mg/m³
Systemic effects – dermal: 0.3 mg/kg bw/day
Systemic effects – oral: 0.3 mg/kg bw/day

· **PNEC (Predicted No-Effect Concentration) aqua (freshwater):**
Terpineol multiconstituent (common CAS 8000-41-7) 62 µg/L
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 2.1 µg/L
· **PNEC (Predicted No-Effect Concentration) aqua (marine water):**
Terpineol multiconstituent (common CAS 8000-41-7) 6.2 µg/L
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 0.21 µg/L
· **PNEC (Predicted No-Effect Concentration) Sewage Treatment Plant:**
Terpineol multiconstituent (common CAS 8000-41-7) 6.2 µg/L
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 6.4 mg/L
· **PNEC (Predicted No-Effect Concentration) sediment (freshwater):**
Terpineol multiconstituent (common CAS 8000-41-7) 0.442 mg/kg sediment dw
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 0.542 mg/kg sediment dw
· **PNEC (Predicted No-Effect Concentration) sediment (marine water):**
Terpineol multiconstituent (common CAS 8000-41-7) 0.044 mg/kg sediment dw
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 54.2 µg/kg sediment dw
· **PNEC (Predicted No-Effect Concentration) soil:**
Terpineol multiconstituent (common CAS 8000-41-7) 0.052 mg/kg soil d
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 110 µg/kg sol ps
· **PNEC (Predicted No-Effect Concentration) oral:**
Terpineol multiconstituent (common CAS 8000-41-7) 16.6 mg/kg food
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 13.1 mg/kg food
· **PNEC (Predicted No-Effect Concentration) aqua (intermittent releases):**
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 21 µg/L

· **Additional information:**
This sheet is based on the current valid lists for occupational exposure limit values. 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**
· **Personal protective equipment**
· **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.
· **Respiratory protection:** Use suitable respiratory protective device in case of insufficient ventilation.
· **Protection of hands:**
Protective gloves resistant to chemicals (standard EN 374-1). Gloves should be discarded and replaced regularly. They should be replaced immediately if there is any indication of degradation or chemical breakthrough.
· **Eye protection:** Safety glasses (standard EN 166)
· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Colourless-slightly amber
· **Odour:**	Turpentine-like
· **Odour threshold:**	Not determined
· **Change in condition**	
Melting/freezing point:	Not determined
Initial boiling point and boiling range:	177 - 221 °C
· **Flash point:**	75 °C (closed cup)
· **Auto-ignition temperature:**	Not determined
· **Decomposition temperature:**	Not determined
· **Explosive properties:**	The components of the mixture do not contain any chemical groups associated with explosive properties.
· **Oxidizing properties:**	The components of the mixture do not contain any chemical groups associated with oxidizing properties.
· **Vapour pressure:**	< 10 mm Hg
· **Density:**	
Relative density	0.91 - 0.93 (20 °C)
· **Evaporation rate:**	Not determined
· **Solubility(ies)**	
in water:	Not soluble or slightly soluble
· **Partition coefficient (n-octanol/water):**	Not determined
· **Viscosity:**	
Dynamic:	Not determined

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 (cf 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 sources of ignition.
· **10.5 Incompatible materials**
Strong acids
Strong oxidizing agents
Materials that react with oxygenated terpenes.
· **10.6 Hazardous decomposition products** No dangerous decomposition products known.

11 Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**
· **LD_{50}/LC_{50} values relevant for classification:**
Terpineol multiconstituent (common CAS 8000-41-7)
LD_{50} (oral, rat): > 2000 mg/kg (OECD 401 Guideline)
LD_{50} (dermal, rabbit): > 2000 mg/kg (OECD 402 Guideline)
LC_{50} (inhalation, 4 h): > 4.76 mg/L (rat) (OECD 403 Guideline)
Note: no acute toxicity (either local or systemic) was identified at the highest dose tested by inhalation (4.76 mg/L). Oral and dermal LD_{50} are higher than 2000 mg/kg. Therefore, no signs of acute toxicity are expected by inhalation at concentrations used for classification.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
LD_{50} (oral, rat): > 2000 mg/kg (OECD 401 Guideline)
LD_{50} (dermal, rat): > 2000 mg/kg (OECD 402 Guideline)

· **Skin corrosion/irritation:**
The components of the mixture cause skin irritation.
Terpineol multiconstituent (common CAS 8000-41-7)
Terpineol multiconstituent and alpha terpineol (main constituent) were found to be skin irritating, in several studies conducted in rabbits according to the OECD Guideline No. 404.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
This substance was found irritant in a skin irritation study conducted in rabbits according to a method equivalent to the OECD 404 Guideline.

· **Serious eye damage/irritation:**
The components of the mixture cause eye irritation.
Terpineol multiconstituent (common CAS 8000-41-7)
Terpineol multiconstituent was found to be eye irritating, in a study conducted in rabbits according to the OECD Guideline No. 405.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
This substance is classified as an eye irritant based on available data on one of its constituent and on another substance containing common constituents:
- camphene induced irritant effects in an eye irritation study conducted in rabbits according to OECD Guideline No 405,
- a substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene was found irritant in an in vitro eye irritation study on a human reconstructed corneal epithelium model.

· **Sensitisation:**
The mixture is classified due to the presence of hydrocarbons, terpene processing by-products.
Terpineol multiconstituent (common CAS 8000-41-7)
This substance is not classified based on the following result: no skin sensitization effects were observed in a Guinea Pig Maximisation Test (GPMT) conducted according to OECD Guideline No. 406.

Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
The substance is classified as a skin sensitiser based on available data on one of its constituent and on another substance containing common constituents: skin sensitisation effects were observed in the murine Local Lymph Node Assay (LLNA - OECD 429 Guideline) conducted with terpinolene and with a substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene.

· **Mutagenicity/genotoxicity:**
The components of the mixture did not show any genotoxic potential.
Terpineol multiconstituent (common CAS 8000-41-7)
Results of tests conducted with the substance and one of its main constituents show that it has no genotoxic potential:
- terpineol multiconstituent and alpha terpineol were not mutagenic in several Ames tests (OECD 471 Guideline),
- no genotoxic effects were observed with the substance in a chromosome aberration test in human lymphocytes (OECD 473 Guideline),
- alpha terpineol was not mutagenic in a gene mutation test on mouse lymphoma L5178Y cells (OECD 476 Guideline).
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Results of tests conducted with the substance showed that it has no genotoxic potential:
- the substance was not mutagenic in bacteria in the Ames test (OECD 471 Guideline),
- the substance was not mutagenic in a gene mutation test in mouse lymphoma L5178Y cells (OECD 476 Guideline),
- no genotoxic effects were observed with the substance in a chromosome aberration test in human lymphocytes (OECD 473 Guideline), except 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 Guideline) was performed under similar experimental conditions (20h-exposure without metabolic activation, human lymphocytes). No biologically relevant increases in micronuclei were observed.

· **Carcinogenicity:**
This mixture is not expected to be carcinogenic.
Terpineol multiconstituent (common CAS 8000-41-7)
This substance is not expected to be carcinogenic: no mutagenic effects were observed with the substance and there is no evidence from the repeated dose toxicity studies that terpineol multiconstituent is able to induce hyperplasia or pre-neoplastic lesions.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
The substance is not expected to be carcinogenic: no mutagenic effects were observed with the substance itself and a repeated dose toxicity study conducted in rats with another substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene did not demonstrate any hyperplasia signs or pre-neoplastic lesions.

· **Reproductive toxicity:**
No toxic effects for reproduction are expected from the mixture.
Terpineol multiconstituent (common CAS 8000-41-7)
Based on findings from three studies conducted in rats with this substance, there is strong evidence that no reproductive effects are likely to occur by the possible routes of human exposure. Further testing will be carried out for REACH purposes.

Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Data are available on two constituents of the substance and on another substance containing common constituents (terpinolene, 1,4-cineole, 1,8-cineole and dipentene). Based on this information, no toxic effects for reproduction are expected from the substance itself:
- a combined repeated dose and reproduction/developmental screening test was conducted in rats according to OECD Guideline No 422, with a substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene. No effects were observed on reproductive performance, gestation parameters, pup survival and development.
NOAEL (No Observed Adverse Effect Level) - systemic toxicity for males and females (P) = 435.8 mg/kg bw/day (higher dose tested)
NOAEL - reproduction and developmental toxicity = 435.8 mg/kg bw/day (higher dose tested).
- no effects were observed on reproductive organs in 90-day inhalation repeated toxicity studies conducted with alpha pinene in rats and mice.
- no effects on development were observed at maternal non-toxic doses in an oral study conducted in rats with camphene (study conducted according to OECD Guideline No 414).

· **Specific target organ toxicity - single exposure:**
No specific target organ toxicity was observed in the LD_{50} determination studies carried out with some components of this product.

· **Specific target organ toxicity - repeated exposure:**
Available data on the components of the mixture do not lead to any classification.
Terpineol multiconstituent (common CAS 8000-41-7)
Available data presented below do not lead to any classification.
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/day.
- liver: complete reversibility of the observed effects 2 weeks after stopping substance administration,
- kidney: the observed changes were specific to male rats and of no consequence to human,
- teste: NOAEL was established at 250 mg/kg/day but there is strong evidence that no effects will occur when animals are exposed through a route relevant for human exposure (diet) rather than gavage.

Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Data are available on two constituents of the substance and on another substance containing common constituents (terpinolene, 1,4-cineole, 1,8-cineole and dipentene). Based on this information, no classification is needed for the substance:
- a combined repeated dose and reproduction/developmental screening test was conducted in rat according to OECD Guideline No 422 with a substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene. Daily administration of the substance by diet for 42 days - at dose levels up to 435.8 mg/kg bw/day - was generally well tolerated . Effects only considered as adaptative or specific for male rats were observed.
NOAEL = 435.8 mg/kg bw/day (maximal tested dose).
- a 90-day repeated dose toxicity study was conducted by inhalation with alpha pinene
NOAEC (mice): 283.24 mg/m³ - based on moderated hyperplasia of the transitional epithelium of the urinary bladder.
- a 28-day repeated dose toxicity study was conducted in rats according to OECD Guideline No 407 with camphene. Daily administration of the substance by gavage at dose levels up to 1000 mg/kg bw/day was generally well tolerated.
NOAEL = 250 mg/kg bw/d - based on absolute and relative weights increase.

· **Aspiration hazard:** No aspiration hazard expected.

· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
According to Regulation (EC) No 1272/2008, the components of the mixture are not considered to be CMR.

12 Ecological information

· **12.1 Aquatic toxicity**
The mixture is classified due to the presence of hydrocarbons, terpene processing by-products.
Terpineol multiconstituent (common CAS 8000-41-7)
LC_{50} (96 h), fish (Danio rerio): 62 - 80 mg/L (nominal concentration - OECD 203 Guideline)
NOEC (96 h), fish (Danio rerio): 62 mg/L (nominal concentration - OECD 203 Guideline)
LC_{50} (48 h), daphnia (Daphnia magna): 73 mg/L (nominal concentration - OECD 202 Guideline)
EC_{50} (48 h), daphnia (Daphnia magna): 73 mg/L (nominal concentration - OECD 202 Guideline)
NOEC (48 h) daphnia (Daphnia magna): 40 mg/L (based on mortality - nominal concentration - OECD 202 Guideline)
EC_{50} (72 h), algae (Pseudokirchneriella subcapitata): 68 mg/L (based on growth rate – nominal concentration – OECD 201 Guideline)
EC_{50} (72 h), algae (Pseudokirchneriella subcapitata): 17 mg/L (based on biomass – nominal concentration – OECD 201 Guideline)
NOEC (72 h), algae (Pseudokirchneriella subcapitata): 3.9 mg/L (growth and biomass - nominal concentration – OECD 201 Guideline)
The substance is not classified because it is readily biodegradable and log Kow is less than 3.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Reliable short-term aquatic toxicity values have been determined in tests conducted with water-accommodated fractions (WAFs). This method was developped for slightly soluble substances; the initial loading rate of the substance is well higher than the solubility in water.
LL_{50} and EL_{50}, similar to LC_{50} and EC_{50}, are obtained.
LL_{50} (96 h), fish (Danio rerio): 5.07 mg/L (nominal concentration - OECD 203 Guideline)
EL_{50} (48 h), daphnia (Dapnia magna): 2.10 - 2.70 mg/L (nominal concentration - OECD 202 Guideline - two batches tested)
EL_{50} (72 h), algae (Pseudokirchnerella subcapitata): 4.78 mg/L (growth rate - nominal concentration - OECD 201 Guideline)
EL_{50} (72 h), algae (Pseudokirchnerella subcapitata): 3.08 mg/L (yield - nominal concentration - OECD 201 Guideline)
These results lead to classify the substance for its toxicity to aquatic life.

· **Toxicity to aquatic microorganisms:**
Sewage containing the mixture can be treated by a municipal sewage treatment plant (taking into account the 2 PNEC sewage treatment plant given in section 8).
Terpineol multiconstituent (common CAS 8000-41-7)
No toxic effects were observed on an activated sludge of a predominantly domestic sewage, in a ready biodegradability study.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
An acute aquatic toxicity study was performed according to OECD Guideline 209 to assess the effects of two different batches of the substance. The microbial source was an activated sludge of a predominantly domestic sewage.
EC_{50}(3h): 365 and 579 mg/L (respiration rate - nominal concentration - two batches tested).
· **Terrestrial toxicity:**
Terpineol multiconstituent (common CAS 8000-41-7)
LC_{50} (14 days): 499 - 799 mg/kg soil dw, earthworm (Eisenia fetida) (based on mortality – nominal concentration – OECD 207 Guideline)
NOEC (14 days): 311 mg/kg soil dw, earthworm (Eisenia fetida) (based on mortality – nominal concentration – OECD 207 Guideline)
NOEC (14 days): 311 mg/kg soil dw, earthworm (Eisenia fetida) (based on growth – nominal concentration – OECD 207 Guideline)
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
No data available.
· **12.2 Persistence and degradability**
The mixture contains 2 substances readily biodegradable.
Terpineol multiconstituent (common CAS 8000-41-7)
Readily biodegradable. After 28 days: 80% degradation (inorganic carbon concentration) – OECD 310 Guideline – domestic activated sludge.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Readily biodegradable.
Biodegradation achieved in 28 days: 81-83% (oxygen consumption - assay conducted according to OECD 301D Guideline - activated sludge, river water near to a domestic wastewater treatment plant).
· **12.3 Bioaccumulative potential**
No measured data are available for the components of the mixture. Based on partition coefficients n-octanol/water determined for the main constituents, an accumulation in organisms is not expected.

· **12.4 Mobility in soil**
Terpineol multiconstituent (common CAS 8000-41-7)
28.8 ≤ Koc ≤ 50.9 (OECD 106)
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
No measured data available.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:**
According to Annex XIII of REACH Regulation, the substances of the mixture are not considered to be Persistent, Bioaccumulating and Toxic.
· **vPvB:**
According to Annex XIII of REACH Regulation, the substances of the mixture are not considered to be very Persistent and very Bioaccumulating.
· **12.6 Other adverse effects** No data available.

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.

14 Transport information

· **14.1 UN Number**	
· **ADR, IMDG, IATA**	UN3082
· **14.2 UN proper shipping name**	
· **ADR**	3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydrocarbons, terpene processing by-products)
· **IMDG, IATA**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydrocarbons, terpene processing by-products)
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG, IATA**	
· **Class**	9 Miscellaneous dangerous substances and articles.
· **Label**	9
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	III
· **14.5 Environmental hazards:**	Environmentally hazardous substance, liquid; Marine Pollutant
· **Marine pollutant:**	Symbol (fish and tree)
· **Special marking (ADR):**	Symbol (fish and tree)
· **Special marking (IATA):**	Symbol (fish and tree)
· **14.6 Special precautions for user:**	Warning: Miscellaneous dangerous substances and articles.
· **Danger code:**	90
· **EMS Number:**	F-A,S-F
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Tunnel restriction code**	E
· **Item:**	M6
· **UN "Model Regulation":**	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (hydrocarbons, terpene processing by-products), 9, III

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 96/82/EC:
Product fulfilling the criteria of category 9. ii) DANGEROUS FOR THE ENVIRONMENT (R51/53).

· **15.2 Chemical safety assessment**
A Chemical Safety Assessment has been carried out for terpineol multiconstituent (common CAS 8000-41-7) and for hydrocarbons, terpene processing by-products (CAS 68956-56-9).

16 Other information

Information provided in this safety data sheet is based on our experience and present knowledge. It is a description of safety requirements and data given on the product and cannot be considered as specifications. They shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Version:** 10.0

· **Emergency telephone numbers (other countries):**
CHEMTREC In-Country Numbers (24/24 - 7/7)
Argentina (Buenos Aires): +54 (0)11 5983 9431
Australia (Sydney): +61 (0)2 9037 2994
Bahrain (Bahrain): +973 1619 9372
Brazil (Rio de Janeiro): +55 21 3958 1449
Canada*: 1 800 424 9300
Chile (Santiago): +56 (0)22 581 4934
China*: 4001 204 937
Czech Republic (Prague): +420 228 880 039
Colombia*: 01 800 710 2151
Germany*: 0 800 181 7059
Hong Kong* (Hong Kong): 800 968 793
Hungary (Budapest): +36 (06)1 808 8425
India*: 000 800 100 7141
Indonesia*: 001 803 017 9114
Israel (Tel Aviv): +972 (0)3 763 0639
Italy*: 800 789 767
Italy (Milan): +39 02 4555 7031
Japan (Tokyo): +81 (0)3 4520 9637
Malaysia*: 1 800 815 308
Mexico*: 01 800 681 9531
Netherlands: +31 (0)858 880 596
Peru (Lima): +51 1 707 1295
Philippines*: 1 800 1 116 1020
Poland (Warsaw): +48 22 398 80 29
Singapore*: 800 101 2201
Singapore: +65 3158 1349
South Africa*: 0 800 983 611
South Korea*: 00 308 13 2549
Spain*: 900 86 85 38
Sweden (Stockholm): +46 (0)8 5250 3403
Switzerland: +41 (0)43 508 20 11
Taiwan*: 00801 14 8954
Thailand*: 001 800 13 203 9987
USA*: 1 800 424 9300
(*) Phone numbers for countries marked with an asterisk must be dialed within the country.

· **Full text of R, H and EUH phrases indicated in sections 2 and 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.
H411 Toxic to aquatic life with long lasting effects.

R10 Flammable.
R36/38 Irritating to eyes and skin.
R43 May cause sensitisation by skin contact.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65 Harmful: may cause lung damage if swallowed.

· **Abbreviations and acronyms:**

bw: body weight
dw: dry weight
EC_{50}: 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)
LC_{50}: Lethal concentration for 50% of exposed animals
CLP: Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging
LD_{50}: Lethal dose for 50% of animals exposed by oral or dermal route
EL_{50} : Loading rate which leads to a 50 % reduction in treated organisms responses compared to untreated organism responses (algae) or loading rate which causes effects to 50 % of the tested organisms (daphnids)
Koc: Organic carbon/water partition coefficient. It represents the potential of retention of the substance on soil organic matter
LL_{50}: Median lethal loading rate (lethal level for 50 % of fish exposed)
LLNA: Local Lymph Node Assay
NOAEC: No Observed Adverse Effect Concentration
NOAEL: No Observed Adverse Effect Level
OECD: Guidelines from the Organisation for Economic Co-operation and Development

PBT: Persistent, Bioaccumulating and Toxic substance.
vPvB: very Persistent and very Bioaccumulating substance.

· **Sources:** REACH registration dossiers of the components of the mixture

· **Modified data compared to the previous version:**
This SDS has been updated with the data of hydrocarbons, terpene processing by-products REACH dossier.

Further Information
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