Material Safety Data Sheet

According to article 31 of regulation No 1907/2006/EC (REACH)

TPB-50-FP-55 – item no. 10-051

Date: March 21st, 2016

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

· **1.1 Product identifier**

Product name: TPB-50-FP-55
Item number: 10-051

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
Relevant identified uses: production and distribution of the product, formulation and use of mixtures based on **TPB-50-FP-55**

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

UCY business services & trading GmbH
Street: Am Villepohl 4
Post code / place: DE-53347 Alfter
Phone: +49 228 2428 732
Facsimile: +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

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.


GHS09 environment

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


GHS07 exclamation mark

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

· **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 GHS09

· **Signal word:** Warning
· **Hazard statements:**
H226 Flammable liquid and vapour.
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 water and soap.
P333+P313	If skin irritation or rash 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
Crude sulphate turpentine (turpentine oil from pulping processes - TOPP)

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

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterization: Mixture**
· **Description:**
TPB-50-FP-55 is composed of products of renewable origin (carbon of biomass origin).

Components of the mixture are the following:
Tall oil pitch
Tall oil pitch consists of fatty acids, resin acids, neutrals, high molecular weight cross esters, polymeric acids and polymeric neutrals.
Hydrocarbons, terpene processing by-products
Mainly terpinolene, camphene,alpha-terpinene, alpha-pinene, dipentene, gamma-terpinene, paracymene, isoterpinolene.
Alpha-Pinene oligomers
Mainly dimers, trimers and tetramers of alpha-pinene.
Turpentine oil from pulping processes
Bicyclic terpene hydrocarbons and sesquiterpenes, with small proportions of sulphur-containing species.
Terpineol multiconstituent
Mainly alpha-terpineol and gamma-terpineol.

· **Hazardous components:**		
CAS: 68956-56-9 EINECS: 273-309-3	hydrocarbons, terpene processing by-products Flam. Liq. 3, H226; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	25-28%
CAS: 8006-64-2 EINECS: 232-350-7	turpentine oil from pulping processes Flam. Liq. 2, H225; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	8-12%
CAS: 8000-41-7 EINECS: 232-268-1	terpineol multiconstituent Skin Irrit. 2, H315; Eye Irrit. 2, H319	8-10%

· **Others:**
- tall oil pitch (CAS No: 8016-81-7) 43-52%
- alpha-pinene oligomers (CAS No: 70750-57-1) 0-7%

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.
Seek immediate medical advice.
· **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.

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

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.
· **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 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.
· **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**
All equipments including ventilation systems must be equipotential and earthed.
Keep away from sources of ignition.
Protect from heat and direct sunlight.
· **Further information about storage conditions:** Recommendation: stainless steel tank with nitrogen blanketing.
· **Recommended storage temperature:** 30 - 35°C
· **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:**
Turpentine oil from pulping processes (CAS 8006-64-2)
Belgium: limit value - 8 hours = 20 ppm
Denmark and Finland: limit value - 8 hours = 140 mg/m³ (25 ppm)
Denmark and Finland: limit value - short term = 280 mg/m³ (50 ppm)
Spain: limit value - 8 hours = 113 mg/m³ (20 ppm)
France: limit value - 8 hours = 560 mg/m³ (100 ppm)
Hungary: limit value - 8 hours = 560 mg/m³
Hungary: limit value - short term = 560 mg/m³
Ireland: limit value - 8 hours = 112 mg/m³ (20 ppm)
Ireland: limit value - short term = 840 mg/m³ (150 ppm)
Poland: limit value - 8 hours = 112 mg/m³
Poland: limit value - short term = 300 mg/m³
United Kingdom: limit value - 8 hours = 566 mg/m³ (100 ppm)
United Kingdom: limit value - short term = 850 mg/m³ (150 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 = 560 mg/m³ (100 ppm)
Switzerland: limit value - short term = 560 mg/m³ (100 ppm)
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)

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)
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)
Dipentene (dl-limonene - 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) - one of the two isomers of dipentene (CAS 138-86-3)
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)
Germany (DFG): limit value - short term = 112 mg/m³ (20 ppm)
Switzerland: limit value - 8 hours = 110 mg/m³ (20 ppm)
Switzerland: limit value - short term = 220 mg/m³ (40 ppm)

· **DNELs**

· **DNEL (Derived No-Effect Level): Workers - Acute / short-term exposure**
Turpentine oil from pulping processes (CAS 8006-64-2)
Systemic effects – dermal: 1.6 mg/kg body weight/day
Systemic effects – inhalation: 11.2 mg/m³
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects – dermal: 5.0 mg/kg body weight/day
Systemic effects – inhalation: 5.8 mg/m³

· **DNEL (Derived No-Effect Level): Workers - Long-term exposure**
Tall oil pitch (CAS 8016-81-7)
Systemic effects - dermal: > 10 mg/kg body weight/day
systemic effects - inhalation: > 35.3 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 body weight/day
Turpentine oil from pulping processes (CAS 8006-64-2)
Local effects - inhalation: 0.77 mg/m³
Systemic effects - dermal: 1.6 mg/kg body weight/day
Systemic effects - inhalation: 11.2 mg/m³
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects – dermal: 1.17 mg/kg body weight/day
Systemic effects – inhalation: 5.8 mg/m³

· **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 body weight/day
Systemic effects - inhalation: 1.25 mg/m³
Systemic effects - oral: 2.5 mg/kg body weight/day

· **DNEL (Derived No-Effect Level): General population - Long-term exposure**
Tall oil pitch (CAS 8016-81-7)
Systemic effects - dermal: > 5 mg/kg body weight/day

Systemic effects - oral: > 5 mg/kg body weight/day
Systemic effects - inhalation: > 8.7 mg/m³
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Systemic effects – inhalation: 0.7 mg/m³
Systemic effects – dermal: 0.3 mg/kg body weight/day
Systemic effects – oral: 0.3 mg/kg body weight/day
Turpentine oil from pulping processes (CAS 8006-64-2)
Systemic effects – oral: 0.57 mg/kg body weight/day
Terpineol multiconstituent (common CAS 8000-41-7)
Systemic effects - dermal: 0.42 mg/kg body weight/day
Systemic effects - inhalation: 1.25 mg/m³
Systemic effects - oral: 0.42 mg/kg body weight/day

· **PNECs**

· **PNEC (Predicted No-Effect Concentration) aqua (freshwater):**
Tall oil pitch (CAS 8016-81-7)
As tall oil pitch is a UVCB substance, PNEC derivation based on conventional methods is not possible. Therefore PNECs for the aquatic compartment are derived from data on the different blocks of constituents of the substance:
Low boiling fatty acids: 0.20 mg/L
C16 saturated - C18 unsaturated fatty acids: 0.20 mg/L
C18 saturated - C24 saturated and unsaturated fatty acids: 0.14 mg/L
Abietic acid: 0.027 mg/L
Palustric acid: 0.024 mg/L
Pimaric acid: 0.027 mg/L
Abietol: 0.0093 mg/L
Aldehydes: 0.0098 mg/L
Effects unlikely from the other blocks of constituents.
Turpentine oil from pulping processes (CAS 8006-64-2)
As turpentine oil from pulping processes is a UVCB substance, PNEC derivation based on conventional methods is not possible. Therefore PNECs for the aquatic compartment are derived from data on the different blocks of constituents of the substance:
Aquatic PNECs (mg/L)
Block 1 (pinene): 0.013
Block 2 (delta-3-carene): 0.0066
Block 3 (dipentene): 0.0042
Block 4 (beta-phellandrene): 0.0055
Block 5 (dimethyl sulfide): 1.7
Block 6 (methyl mercaptan): 1.8
Block 7 (sesquiterpenes): 0.00037
Block 8 (terpene alcohols): 0.08
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 2.1 µg/L
Terpineol multiconstituent (common CAS 8000-41-7) 62 µg/L
· **PNEC (Predicted No-Effect Concentration) aqua (marine water):**
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 0.21 µg/L
Terpineol multiconstituent (common CAS 8000-41-7) 6.2 µg/L
· **PNEC (Predicted No-Effect Concentration) Sewage Treatment Plant:**
Tall oil pitch (CAS 8016-81-7) does not cause inhibitory effects to microorganisms in sewage treatment plants.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 6.4 mg/L
Terpineol multiconstituent (common CAS 8000-41-7) 2.57 mg/L

· **PNEC (Predicted No-Effect Concentration) sediment (freshwater):**
Tall oil pitch (CAS 8016-81-7)
As tall oil pitch is a UVCB substance, PNEC derivation based on conventional methods is not possible. Therefore PNECs for this compartment are derived from data on the different blocks of constituents of the substance:
Low boiling fatty acids: 8.5 mg/kg wet weight
C16 saturated - C18 unsaturated fatty acids: 48 mg/kg wet weight
C18 saturated - C24 saturated and unsaturated fatty acids: 250 mg/kg wet weight
Abietic acid: 13 mg/kg wet weight
Palustric acid: 11 mg/kg wet weight
Pimaric acid: 12 mg/kg wet weight
Abietol: 5.7 mg/kg wet weight
Aldehydes: 5.7 mg/kg wet weight
Effects unlikely from the other blocks of constituents.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 0.542 mg/kg sediment dry weight
Terpineol multiconstituent (common CAS 8000-41-7) 0.442 mg/kg sediment dry weight
· **PNEC (Predicted No-Effect Concentration) sediment (marine water):**
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 54.2 µg/kg sediment dry weight
Terpineol multiconstituent (common CAS 8000-41-7) 0.044 mg/kg sediment dry weight
· **PNEC (Predicted No-Effect Concentration) soil:**
Tall oil pitch (CAS 8016-81-7)
As tall oil pitch is a UVCB substance, PNEC derivation based on conventional methods is not possible. Therefore PNECs for this compartment are derived from data on the different blocks of constituents of the substance:
Low boiling fatty acids: 6.8 mg/kg wet weight
C16 saturated - C18 unsaturated fatty acids: 39 mg/kg wet weight
C18 saturated - C24 saturated and unsaturated fatty acids: 200 mg/kg wet weight
Abietic acid: 10 mg/kg wet weight
Palustric acid: 9.1 mg/kg wet weight
Pimaric acid: 9.8 mg/kg wet weight
Abietol: 4.59 mg/kg wet weight
Aldehydes: 4.6 mg/kg wet weight
Effects unlikely from the other blocks of constituents.
Effects unlikely from the other blocks of constituents.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 110 µg/kg soil dry weight
Terpineol multiconstituent (common CAS 8000-41-7) 0.052 mg/kg soil dry weight
· **PNEC (Predicted No-Effect Concentration) oral:**
Hydrocarbons, terpene processing by-products (CAS 68956-56-9) 13.1 mg/kg food
Terpineol multiconstituent (common CAS 8000-41-7) 16.6 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 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:** Use suitable respiratory protective device in case of insufficient ventilation.
· **Hand protection:**
Protective gloves resistant to chemicals (standard EN 374-1). They should be replaced regularly and if there is any indication of degradation or chemical breakthrough.
· **Eye protection:** Safety glasses (standard EN 166).
· **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Colour:	Black
· **Odour:**	Tar
· **Odour threshold:**	Not determined
· **Change in condition**	
Melting/freezing point:	Not determined
Initial boiling point and boiling range:	Not determined
· **Flash point:**	55 - 70°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.
· **Oxidising properties:**	The components of the mixture do not contain any chemical groups associated with oxidizing properties.
· **Vapour pressure:**	Not determined
· **Density**	
Relative density:	0.94 - 0.96 (20°C)
· **Evaporation rate:**	Not determined
· **Solubility(ies)**	
In water:	Not soluble or slightly soluble
· **Partition coefficient (n-octanol/water):**	Not determined
· **Viscosity**	
Dynamic:	10 - 50 mPa.s (50°C) 25 - 100 mPa.s (30-35°C)
· **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 sources of ignition.
· **10.5 Incompatible materials**
Strong acids
Strong bases
Strong oxidising agents
· **10.6 Hazardous decomposition products** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity**
· **LD_{50}/LC_{50} values relevant for classification:**
Tall oil pitch (CAS 8016-81-7)
LD_{50} (oral, rat): > 2000 mg/kg (OECD 425 Guideline)
LD_{50} (dermal, rat): > 2000 mg/kg (OECD 402 Guideline)
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)
Turpentine oil from pulping processes (CAS 8006-64-2)
LD_{50} (oral, rat): 4.6 mL/kg (equivalent to about 4000 mg/kg)
LD_{50} (dermal, rat): > 2000 mg/kg
CL_{50} (inhalation, 4h, rat): 13.7 mg/L
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, rat): > 4.76 mg/L (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.
Alpha-Pinene oligomers (CAS 70750-57-1)
LD_{50} (oral, rat): > 2000 mg/kg (OECD 401 Guideline) (test conducted with a structurally-related substance).

· **Skin corrosion/irritation:**
The mixture is classified as skin irritant due to the presence of the following components:
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 OECD Guideline 404.
Turpentine oil from pulping processes(CAS 8006-64-2)
Several constituents of this substance are classified as skin irritants.
Terpineol multiconstituent (common CAS 8000-41-7)
Multiconstituent terpineol and alpha-terpineol (main constituent) were found to be skin irritant, in several studies conducted in rabbits according to OECD Guideline 404.
· **Serious eye damage/irritation:**
The mixture is classified as eye irritant due to the presence of the following components:
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 constituents (camphene) and on another substance containing common constituents (1,4-cineole, 1,8-cineole and dipentene).
Turpentine oil from pulping processes (CAS 8006-64-2)
This substance is classified as an eye irritant by extrapolation of available data on its constituents.
Terpineol multiconstituent (common CAS 8000-41-7)
This substance was found to be eye irritating, in a study conducted in rabbits according to OECD Guideline 405.
· **Sensitisation:**
The mixture is classified due to the presence of hydrocarbons, terpene processing by-products and turpentine oil from pulping processes.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
This substance is classified as a skin sensitiser based on available data on one of its constituents and on another substance containing common constituents: terpinolene and a substance containing terpinolene, 1,4-cineole, 1,8-cineole and dipentene were found skin sensitisers in the murine Local Lymph Node Assay (LLNA - OECD 429 Guideline).
Turpentine oil from pulping processes (CAS 8006-64-2)
Turpentine oil from pulping processes is classified as skin sensitiser by extrapolation of available data on its constituents.

· **Mutagenicity/genotoxicity:**
The components of the mixture did not show any genotoxic potential.
Tall oil pitch (CAS 8016-81-7)
- no mutagenic effects observed in a bacteria assay (Ames test) carried out according to OECD Guideline 471.
- no genotoxic effects observed in a chromosome aberration assay on human lymphocytes in vitro carried out according to OECD Guideline 473.
- no mutagenic effects observed in a gene mutation test on mouse lymphoma cells carried out according to OECD Guideline 476.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
- no mutagenic effects observed in bacteria in the Ames test (OECD Guideline 471).
- no mutagenic effects observed in a gene mutation test in mouse lymphoma L5178Y cells (OECD Guideline 476).
- no genotoxic effects observed with the substance in a chromosome aberration test in human lymphocytes (OECD Guideline 473), 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 Guideline 487) was performed under similar experimental conditions (20h-exposure without metabolic activation, human lymphocytes). No biologically relevant increases in micronuclei were observed.
Turpentine oil from pulping processes (CAS 8006-64-2)
- no mutagenic effects observed in a bacteria assay (Ames test) carried out according to OECD Guideline 471.
- no genotoxic effects were observed in a chromosome aberration assay on human lymphocytes in vitro carried out according to OECD Guideline 473.

- no mutagenic effects were observed in a gene mutation test on mouse lymphoma cells carried out according to OECD Guideline 476.
Terpineol multiconstituent (common CAS 8000-41-7)
- terpineol multiconstituent and alpha-terpineol were not mutagenic in several Ames tests (OECD Guideline 471).
- no genotoxic effects were observed with terpineol multiconstituent in a chromosome aberration test in human lymphocytes (OECD Guideline 473),
- alpha-terpineol was not mutagenic in a gene mutation test on mouse lymphoma L5178Y cells (OECD Guideline 476).
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.

· **Carcinogenicity:**
This mixture is not expected to be carcinogenic.
Tall oil pitch (CAS 8016-81-7)
No mutagenic/genotoxic effects were observed with the substance and there was no evidence of hyperplasia or preneoplastic lesions in the repeated dose toxicity studies conducted with some constituents of tall oil pitch or related substances.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
This 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.
Turpentine oil from pulping processes (CAS 8006-64-2)
This substance is not expected to be carcinogenic: no mutagenic/genotoxic effects were observed with the substance and there was no evidence of hyperplasia or preneoplastic lesions in the repeated dose toxicity studies conducted with its constituents.
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.
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.

· **Reproductive toxicity:**
No toxic effects for reproduction are expected from the mixture.
Tall oil pitch (CAS 8016-81-7)
No reproductive or developmental toxicity studies have been conducted with tall oil pitch as whole product, but data are available for some of its constituents and for related substances: fatty acids, resin acids and neutrals, sterols, distilled tall oil. The effects observed with these substances were minor.
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Data are available on two constituents of the substance (alpha-pinene and camphene) and on another substance containing common constituents (terpinolene, 1,4-cineole, 1,8-cineole and dipentene). By analogy, no toxic effects for reproduction are expected from the substance itself:
Turpentine oil from pulping processes (CAS 8006-64-2)
Data are available on some constituents of the substance. By analogy, no toxic effects for reproduction are expected from the substance itself.
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.
A prenatal developmental toxicity study was conducted according to OECD Guideline 414. Administration of the substance by gavage to pregnant female rats at doses up to 600 mg/kg bw/day did not induce effects considered as adverse on pup survival and development.
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.

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

· **Specific target organ toxicity - repeated exposure:**
Available data on some of the components of the mixture do not lead to any classification.
Tall oil pitch (CAS 8016-81-7)
No relevant repeated dose toxicity studies have been conducted for tall oil pitch as whole product, however oral data are available for some of its constituents and for some related substances. None of them is classified for specific target organ toxicity.

Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
Data are available on two constituents of the substance (alpha-pinene and camphene) 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.
Turpentine oil from pulping processes (CAS 8006-64-2)
A 90-day repeated dose inhalation study was carried out for two constituents of this substance: dimethyl disulfide and alpha pinene. Based on this information, no effects leading to classifiication for this toxicity category are expected from crude sulphate turpentine.
Terpineol multiconstituent (common CAS 8000-41-7)
Available data do not lead to any classification: in a repeated dose toxicity study, daily administration of multiconstituent terpineol by gavage for 5 weeks to male and female rats was generally well tolerated.
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.

· **Aspiration hazard:** After swallowing, no entry into the respiratory tract is 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.

SECTION 12: Ecological information

· **12.1 Aquatic toxicity**
The mixture is classified due to the presence of hydrocarbons, terpene processing by-products and turpentine oil from pulping processes.
Reliable short-term aquatic toxicity values presented below 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.

Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
LL_{50} (96 h), fish (Danio rerio): 5.07 mg/L (nominal concentration - OECD Guideline 203)
EL_{50} (48 h), daphnia (Dapnia magna): 2.10 - 2.70 mg/L (nominal concentration - OECD Guideline 202 - two batches tested)
EL_{50} (72 h), algae (Pseudokirchnerella subcapitata): 4.78 mg/L (growth rate - nominal concentration - OECD Guideline 201)
EL_{50} (72 h), algae (Pseudokirchnerella subcapitata): 3.08 mg/L (yield - nominal concentration - OECD Guideline 201)
No measured data are available for long-term toxicity of the substance to fish or aquatic invertebrates.
These results lead to classify the substance for its toxicity to aquatic life.
Turpentine oil from pulping processes (CAS 8006-64-2)
Turpentine oil from pulping processes with sulphur content of 0.02%:
LL_{50} (96h), fish (Danio rerio): 29 mg/L
NOELr, fish (Danio rerio): 5 mg/L
EL_{50} (48h), daphnia (Dapnia magna): 8.8 mg/L
NOELr, daphnia (Daphnia magna): 2.5 mg/L
EL_{50} (72h), algae (Desmodesmus subspicatus): 17.1 mg/L
NOELr, algae (Desmodesmus subspicatus): 10 mg/L
TOPP with sulphur content of 3.6%.
LL_{50} (96h), fish (Danio rerio): 45.1 mg/L
NOELr, fish (Danio rerio): 5 mg/L
EL_{50} (48h), daphnia (Dapnia magna): 8.8 mg/L
NOELr, daphnia (Daphnia magna): 2.5 mg/L
EL_{50} (72h), algae (Desmodesmus subspicatus): 17.1 mg/L
NOELr, algae (Desmodesmus subspicatus): 10 mg/L
TOPP with sulphur content of 3.6%.
LL_{50} (96h), fish (Danio rerio): 45.1 mg/L
NOELr, fish (Danio rerio): 5 mg/L
EL_{50} (48h), daphnia (Dapnia magna): 6.4 mg/L
NOELr, daphnia (Daphnia magna): 2.5 mg/L
EL_{50} (72h), algae (Desmodesmus subspicatus): 22.5 mg/L
NOELr, algae (Desmodesmus subspicatus): 5 mg/L
No measured data are available for long-term toxicity of the substance to fish or aquatic invertebrates.
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 PNECs sewage treatment plant given in section 8).
Tall oil pitch (CAS 8016-81-7)
EL_{50} (3 h), bacteria (activated sludge): > 100 mg/L (nominal concentration - OECD 209)
Hydrocarbons, terpene processing by-products (CAS 68956-56-9)
EC_{50}(3h), bacteria (activated sludge): 365 and 579 mg/L (respiration rate - nominal concentration - two batches tested - OECD 209).
Turpentine oil from pulping processes (CAS 8006-64-2)

No data available.
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.
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.

· **Terrestrial toxicity:**
Only data on terpineol multiconstituent are available.
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 Guideline 207)
NOEC (14 days): 311 mg/kg soil dw, earthworm (Eisenia fetida) (based on mortality – nominal concentration – OECD Guideline 207)
NOEC (14 days): 311 mg/kg soil dw, earthworm (Eisenia fetida) (based on growth – nominal concentration – OECD Guideline 207)

· **12.2 Persistence and degradability**
Some components of the mixture are not readily biodegradable.
Tall oil pitch (CAS 8016-81-7)
The substance as a whole is not readily biodegradable: 36% of biodegradation was achieved in 28 days in a study conducted according to OECD Guideline 301D (oxygen consumption, activated sludge, non-adapted).
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 - domestic activated sludge).
Turpentine oil from pulping processes (CAS 8006-64-2)
Biodegradation of 72% (measure of oxygen consumption) was achieved in 28 days using a method consistent with OECD Guideline 301 F. The '10-day window' criterion was, however, not met. However, it cannot be stated with complete certainty that it does not contain non-readily-biodegradable constituents.
Terpineol multiconstituent (common CAS 8000-41-7)
Readily biodegradable. After 28 days: 80% degradation (inorganic carbon concentration) – OECD Guideline 310 – domestic activated sludge.
Alpha-Pinene oligomers (CAS 70750-57-1)
No data available.
· **12.3 Bioaccumulative potential** No measured data are available for the components of the mixture.
· **12.4 Mobility in soil**
The only available measured data are about terpineol multiconstituent.
Terpineol multiconstituent (common CAS 8000-41-7)
$28.8 \leq Koc \leq 50.9$ (OECD 106)
· **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.

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**	
· **ADR, IMDG, IATA**	UN1993
· **14.2 UN proper shipping name**	
· **ADR**	1993 FLAMMABLE LIQUID, N.O.S. (crude sulphate turpentine), ENVIRONMENTALLY HAZARDOUS
· **IMDG**	FLAMMABLE LIQUID, N.O.S. (crude sulphate turpentine), MARINE POLLUTANT
· **IATA**	FLAMMABLE LIQUID, N.O.S. (crude sulphate turpentine)

· **14.3 Transport hazard class(es)**	
· **ADR, IMDG**	
	
· **Class**	3 Flammable liquids.
· **Label**	3
· **IATA**	
	
· **Class**	3 Flammable liquids.
· **Label**	3
· **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)
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Danger code:**	30
· **EMS Number:**	F-E,S-E
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Substances of the mixture listed in the IBC code (International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk): Tall oil pitch Pollution category: Y, ship type: 2 Turpentine Pollution category: Y, ship type: 2
· **Transport/Additional information:**	
· **ADR**	
· **Tunnel restriction code**	D/E
· **Classification code (letter/figure)**	F1
· **UN "Model Regulation"**	UN1993, FLAMMABLE LIQUID, N.O.S. (crude sulphate turpentine), 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)",
- E1 "Hazardous to the aquatic environment in category chronic 2 (H411)".

· **15.2 Chemical safety assessment**
A Chemical Safety Assessment has been carried out for hydrocarbons, terpene processing by-products (CAS 68956-56-9), turpentine oil from pulping processes (CAS 8006-64-2) and terpineol multiconstituent (common CAS 8000-41-7).

SECTION 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.

· **Full text of R, H and EUH phrases indicated in sections 2 and 3:**
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

· **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 (daphnia)
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
NOELr: Initial loading rate of the substance without observed effect
OECD: Guidelines from the Organisation for Economic Co-operation and Development
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: very Persistent and very Bioaccumulative substance.
UVCB: Substances of unknown or variable composition, complex reaction products or biological materials
Flam. Liq. 2: Flammable liquids, Category 2
Flam. Liq. 3: Flammable liquids, Category 3
Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Category 2
Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
Skin Sens. 1: Skin sensitisation, Category 1
Skin Sens. 1B: Skin sensitisation, Category 1B
Asp. Tox. 1: Aspiration hazard, Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· **Sources:**
Company and literature data
Data of REACH dossiers for the substances of the mixture already registered

· **Modified data compared to the previous version:**
Classification and labeling according to Directive 67/548/EEC or Directive 1999/45/EC withdrawn.