

SAFETY DATA SHEET



SUNPINE

In accordance with Regulation (EC) no. 1907/2006, Annex II
(amended by Regulation (EU) 2020/878)

Crude tall oil (CTO)

Version: 8.0/Eng

Revision date: 09/12/2024

Supersedes: 10/02/2020

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name: **Crude tall oil (CTO)**
Name of substance: Crude tall oil
CAS no.: 8002-26-4
EC no: 931-433-1
REACH registration number: 01-2119494863-23

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

Identified uses:

Formulation:

ES 3: Formulation of fuel

ES 5: Formulations

Uses at industrial sites:

ES 2: Fractionation of CTO

ES 4: Use of CTO as a fuel at industrial sites

ES 6: Industrial use of formulations

1.3 Details of the supplier of the safety data sheet

Name: SunPine AB
Address: Box 76
941 22 Piteå
Sweden
Telephone number: 0911-23 28 00
E-mail address of publisher responsible for safety data sheet: sds@sunpine.se

1.4 Emergency telephone number

Emergency telephone number in Sweden: 112
Telephone number of the Poisons Information Centre: 010-456 67 00
On duty off hours: Yes

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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Classified in accordance with Regulation (EC) no. 1272/2008:

Skin sensitiser, Category 1B: H317

See section 16 for full description of hazard classes and hazard statements.

2.2 Label elements

Labelling in accordance with Regulation (EC) no. 1272/2008

Hazard pictogram:



Signal word: Warning

Hazard statements:

H317: May cause an allergic skin reaction.

Precautionary statements:

P261: Avoid breathing fumes/mist/vapours/spray.

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

P284: In case of inadequate ventilation wear respiratory protection

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

P333 + P313: If skin irritation or rash occurs: Seek medical advice/attention.

P501: Dispose of contents/container to approved disposal site.

2.3 Other hazards

Hot CTO or CTO in contact with hot materials may self-combust, especially if immersed in mineral wool.

CTO may contain small amounts of extremely flammable and very toxic hydrogen sulphide (H₂S). The gas can accumulate over time in the headspace of storage container or tanks or similar closed equipment.

The product does not fulfil the PBT and vPvB criteria in accordance with Annex XIII to REACH.

There are no substantial evidence to demonstrate that the product or its constituents have endocrine disrupting properties.

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3.1 Substances

Classification of components in accordance with the CLP Regulation (1272/2008/EC):

Hazardous substance	Conc. (w/w %)	CAS/EC No./Index No.	Hazard class and category codes	Hazard statements
Crude tall oil (CTO)*	100	8002-26-4/ 931-433-1	Skin Sens. 1B ATE: Oral/Dermal: > 2000 mg/kg bw Inhalation: No relevant data available	H317

* Crude tall oil: The product is defined as a UVCB substance.¹ A complex combination of tall oil resin and fatty acids derived by acidification of tall oil soap from wood pulping and including that which is further refined.

See section 16 for full wording of hazard phrases.

4 FIRST-AID MEASURES

4.1 Description of First aid measures

If inhalation occurs: Move exposed person to fresh air and keep person at rest to facilitate breathing. Seek medical attention in case of persisting adverse health effects.

If skin contact occurs: Remove contaminated clothing and shoes and dispose of them safely. Wash contaminated skin with plenty of water and soap.

If eye contact occurs: Gently flush eyes with plenty of lukewarm water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses if this is not difficult. Continue to rinse. Get specialist medical attention if there are any persisting symptoms.

If ingestion occurs: Do NOT induce vomiting. Wash out mouth carefully with plenty of water. Seek medical attention immediately if vomiting or serious coughing occurs, or if more than an insignificant amount has been swallowed.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: Irritating to respiratory system. Inhalation may cause coughing, tightness of the chest and irritation of the respiratory system.

Skin contact: May cause an allergic skin reaction.

Contact with eyes: May cause temporary irritation to the eyes.

Ingestion: May cause nausea, vomiting and diarrhoea.

¹ Substances with unknown or varying compositions, complex reaction products or biological material.

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4.3 Indication of any immediate medical attention and special treatment required

Treat symptomatically. Seek medical attention if unsure or in case of persisting adverse health effects. Never give anything by mouth to an unconscious person.

5 FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable media:

Use extinguishing media appropriate to the surrounding fire conditions.
Use as appropriate: foam, CO₂ or water spray.

Unsuitable media:

Do not use powerful water jet as this can cause the fire to spread.

5.2 Special hazards arising from the substance or mixture

Fire hazards: Burning produces irritating, toxic and obnoxious fumes consisting mainly of carbon dioxide and water and small amounts of carbon monoxide, sulfur dioxide and nitrogen oxides.

5.3 Advice for firefighters

Wear full-body protective clothing and breathing masks when fighting fires. Wear full-body protective clothing.

Other

Eliminate all fire/ignition sources. Containers in the vicinity of fires should be moved immediately or cooled with water. Ensure the water does not come into contact with the seat of the fire. The product is not considered flammable but may burn at high temperatures.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation of the working area. Do not get on skin or in the eyes. Use protective gloves and other necessary protective equipment (see section 8).

6.2 Environmental precautions

Prevent emissions from coming into contact with waterways, sewage and soil. Contact the emergency services in the case of larger spills. Local authorities must be informed if significant spills cannot be contained.

6.3 Methods and materials for containment and cleaning up

Absorb spills with a suitable inert absorbent (e.g. sand, active clay, multisorb). Collect in suitable labelled waste containers. Clean the spill area with large amounts of water and cleaning agent.

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6.4 Reference to other sections

See section 7 and 8 on risk management measures and section 13 for disposal information.

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Crude tall oil can contain small amounts of hydrogen sulfide (H₂S). The gas can accumulate over time in the headspace of crude tall oil storage tanks and truck tanks. Its presence can pose a significant hazard to humans and the risk has to be recognized and managed. Appropriate risk management measures include local exhaust ventilation, the setting of standard protocols for proper venting of the tank before entrance, use of workspace and personal gas detectors/alarms, documented safe working procedure/restricted working areas, clearly placed placards and use of appropriate respiratory protective equipment when and where local risk assessments indicate it is required.

Protective measures

Avoid contact with eyes and skin. Ensure adequate ventilation of the working area.

Keep away from heat. Keep away from sources of ignition - No smoking.

Adopt best Manual Handling considerations when handling, carrying and dispensing.

Advice on general occupational hygiene

Do not eat, drink or smoke in work areas. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove contaminated clothing and protective equipment before entering eating areas. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

7.2 Conditions for safe storage, including any incompatibilities

Storage: Keep in a cool, dry, well ventilated area. Keep containers tightly closed. Store in correctly labelled containers.

7.3 Specific end use(s)

See exposure scenarios attached to this Safety Data Sheet. Please, report to your supplier if you or your downstream users have other uses or broader uses that you want to be covered in the REACH registration of your manufacturer of crude tall oil.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limit values:

Threshold Limit Values for this substance are not established within the EU.

Indicative occupational exposure limits exist for hydrogen sulfide (H₂S) (European Commission directive 2009/161/EU).

Hazard conclusion for workers

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Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Systemic effects - Long-term	DNEL 11.8 mg/m ³	repeated dose toxicity (oral)
Inhalation	Systemic effects - Acute	no hazard identified	
Inhalation	Local effects - Long-term	no hazard identified	
Inhalation	Local effects - Acute	no hazard identified	
Dermal	Systemic effects - Long-term	DNEL 33.5 mg/kg bw/day	repeated dose toxicity (oral)
Dermal	Systemic effects - Acute	no hazard identified	
Dermal	Local effects - Long-term	medium hazard (no threshold derived)	
Dermal	Local effects - Acute	medium hazard (no threshold derived)	
Eyes	Local effects	no hazard identified	

Hazard conclusion for the general population

Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Systemic effects - Long-term	no hazard identified	
Inhalation	Systemic effects - Acute	no hazard identified	
Inhalation	Local effects - Long-term	no hazard identified	
Inhalation	Local effects - Acute	no hazard identified	
Dermal	Systemic effects - Long-term	no hazard identified	
Dermal	Systemic effects - Acute	no hazard identified	
Dermal	Local effects - Long-term	medium hazard (no threshold derived)	

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Dermal	Local effects - Acute	medium hazard (no threshold derived)	
Eyes	Local effects	no hazard identified	

Hygienic limit value, Sweden

Substance	Level limit value		Short-time value		Note Source	Year
	mg/m ³	ppm	mg/m ³	ppm		
Oil mist, including oil fumes	1	-	3	-	AFS 2023:14 Note: V*	1990

*Note V: Indicative short-term limit value to be used as a recommended maximum value that should not be exceeded.

PNECs

As crude tall oil is a UVCB (Substance is of Unknown or Variable composition, Complex reaction product or Biological origin) derivation of a single, representative PNEC value for this substance using conventional methods is not possible. PNECs for different compartments is therefore based on data for the blocks of constituents rather than on data for the whole substance.

PNECs for crude tall oil constituent blocks

Block	Freshwater PNECs [mg/L]	Marine water PNECs [mg/L]	Freshwater sediments PNECs [mg/kg sediment dry weight]	Marine water sediments PNECs [mg/kg sediment dry weight]	Soil PNECs [mg/kg soil dry weight]	Secondary poisoning
Saturated and unsaturated fatty acids and their isomers (A1)	0.02	0.002	1600	160	320	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Rosin acids and their isomers (A2)	0.047	0.005	104	10.4	20.8	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Water (B1)	PNEC derivation is not necessary					
Terpineol and isomers (C1)	0.04	0.004	2.5	0.25	0.5	no potential to cause toxic effects if accumulated (in

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						higher organisms) via the food chain
Rosin aldehydes (C2)	0.000	0.000	5.99	0.599	1.2	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Rosin alcohols (C3)	5.6E-4	5.6E-5	20.2	2.02	4.03	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
C20-C26 fatty alcohols (C4)	2.3E-5	2.3E-6	4.69	0.469	0.939	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Sterols (C5)	no hazard identified*: Intermittent releases	no hazard identified*: Intermittent releases	no hazard identified	no hazard identified	no hazard identified	no potential for bioaccumulation
Betulaprenol (C6)	no hazard identified*: Intermittent releases	no hazard identified*: Intermittent releases	no hazard identified	no hazard identified	no hazard identified	no potential for bioaccumulation
Bicyclic terpenes (E1)	0.0053	5.3E-4	2.96	0.296	0.596	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Sesquiterpenes (E2)	2.0E-4	2.0E-5	3.22	0.322	0.64	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Rosin hydrocarbons (E3)	1.7E-5	1.7E-6	48.2	4.82	9.65	no potential to cause toxic effects if accumulated (in higher organisms) via the food chain
Stilbene (E4)	0.0056	0.00056	4.4	0.44	0.88	no potential to cause toxic effects if accumulated (in

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						higher organisms) via the food chain
Squalene and isomers (E5)	no hazard identified*: Intermittent releases	no hazard identified *: Intermitte nt releases	no hazard identified	no hazard identified	no hazard identified	no potential for bioaccumulation

*Toxic concentrations are above the water solubility of the constituents

PNEC intermittent release justification: Risk characterisation of crude tall oil for the aquatic compartment is based on the hydrocarbon block method that is applicable to UVCB substances. Aquatic PNECs for intermittent releases is determined from the aquatic PNECs by multiplying by a factor of 10.

No PNECs have been derived for crude tall oil in biological waste water treatment plant because crude tall oil is well tolerated by environmental organisms.

No PNECs have been derived for the air compartment since no hazards have been identified.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Crude tall oil can contain small amounts of hydrogen sulfide (H₂S). The gas can accumulate over time in the headspace of crude tall oil storage tanks and truck tanks. Its presence can pose a significant hazard to humans and the risk has to be recognized and managed. Appropriate risk management measures include local exhaust ventilation, the setting of standard protocols for proper venting of the tank before entrance, use of workspace and personal gas detectors/alarms, documented safe working procedure/restricted working areas, clearly placed placards and use of appropriate respiratory protective equipment when and where local risk assessments indicate it is required.

8.2.2. Individual protection measures, such as personal protective equipment.

a) Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or gases.

b) Skin protection

Chemical-resistant, impervious gloves complying with EN374 should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Recommended glove material is nitrile, neoprene, butyl and polyethylene with a breakthrough time greater than four hours. A thickness of at least 0.12 mm is recommended for splashes or exposure of up to 10 minutes. A thickness of at least 0.38 mm is recommended for exposure of up to 4 hours.

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But notice that breakthrough times vary extensively between types of gloves and glove suppliers. Warranties regarding breakthrough times of the glove material vary between glove manufacturers, therefore always follow provided recommendations from your supplier.

c) Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard when and where local risk assessments indicate it is required. When there is a risk of inhaling vapours, fumes and mist (e.g. when cleaning, working in enclosed spaces and tanks).

d) Thermal hazards

The temperature of crude tall oil varies from 60 °C to 95 °C. The temperature at the production unit (i.e. reactor) can be up to 95 °C, and in the storage tank up to 60 °C. Crude tall oil must therefore be considered as a potential thermal hazard. To minimize the risk of thermal injuries when working with CTO, full face protection (visir) is recommended, protective gloves (rubber) and comprehensive clothing.

8.2.3 Environmental exposure controls

Collect spillage. Prevent dispersal of spilled materials to waterways, drains and sewers and pollution of soil and vegetation. See section 13 for disposal considerations.

ES 2: Fractionation of CTO

Closed processes. Aqueous waste is treated on-site or off-site in a waste water treatment plant.

ES 3: Formulation of fuel

Oil-water separation, e.g. via oil water separators, oil skimmers, dissolved air flotation, is required to limit release to water.

ES 4: Use of CTO as a fuel at industrial sites

It is expected that crude tall oil is completely destroyed during the incineration processed used in energy generation. Site well controlled with measures to limit water contamination in place; precautions to minimise emissions to the water environment are for example the use of bunden areas and collection of drainage water.

ES 5: Formulations

Oil-water separation, e.g. via oil water separators, oil skimmers, dissolved air flotation, is required to limit release to water.

ES 6: Industrial use of formulations

Waste disposal according to national/local legislation.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state:	Viscous, oily liquid
Colour:	Brown to black

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Odour:	Weak odour of organic sulphur compounds	
Odour threshold:	Not applicable	
pH_	Not applicable	
Melting point/freezing point:	Not applicable	
Initial boiling point and boiling range:	150°C	ASTM D6352
Flash point:	150-700°C	ASTM D6352
Evaporation rate:	>150°C	ASTM D93
Flammability:	Not applicable	
Lower and upper explosive (flammable) limits:	Not inflammable	
Vapour pressure:	Not applicable	
Vapour density:	Not applicable	
Relative density:	Not applicable	
Solubility in water:	0,980±0,015 (15°C)	SS-EN ISO 12185
Partition coefficient: n-octanol/water:	Negligible	
Auto-ignition temperature:	Not applicable	
Decomposition temperature:	Not applicable	
Viscosity:	Not applicable	
	10-20 cSt (90°C)	ASTM D445
	65±15cSt (50°C)	ASTM D445
	375±50cSt (20°C)	Calculated according to ASTM D341
Explosive properties:	Not explosive	
Oxidising properties:	Not oxidising	

9.2 Other information

No data available.

10 STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions regards use and storage.

10.2 Chemical stability

Stable under normal conditions regards use and storage. The substance is not flammable but is combustible.

10.3 Possibility of hazardous reactions

No specific hazardous reactions are expected to occur.

10.4 Conditions to avoid

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Avoid high temperatures and direct sunlight. Hot tall oil or tall oil in contact with hot material may self-combust, especially if the tall oil is immersed in mineral wool. Avoid direct contact with air.

10.5 Incompatible materials

Contact with strong oxidising agents may cause hazardous reactions.

10.6 Hazardous decomposition products

H₂S gas can accumulate over time in the headspace of crude tall oil storage tanks and tank trucks. In contact with air oxidation products with sensitizing properties may be formed.

11 TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) Acute toxicity

CTO is not classified for acute toxicity.

Oral LD₅₀, rat: >2,000 mg/kg bw (OECD 423), no adverse effects observed.

Dermal LD₅₀, rabbit: >2,000 mg/kg bw (OECD 402), no adverse effects observed.

Inhalation, no data available.

There were no clinical signs of toxicity, no signs of local irritation and no necropsy findings in either one of these tests.

b) Skin corrosion/irritation

CTO is considered not to be irritating to skin. No skin reactions were reported in a skin irritation test where observations were carried out for 72 hours (rabbit) (OECD 404).

c) Serious eye damage/irritation

CTO is considered not to be corrosive/irritating to eyes (OECD 405). Minor effects were observed in an eye irritation test after 1 hour of observation, but at no other time (rabbit).

d) Respiratory - skin sensitisation

CTO is a (weak) skin sensitiser. The skin sensitising potential of CTO was shown in the local lymph node analysis (OECD 429). In an in vitro test targeted at skin corrosion (OECD TG 430), the mean TER of crude tall oil treated skins was 21.2 kΩ, which is above the threshold of 5 kΩ for classification.

e) Germ cell mutagenicity

CTO is considered not to be mutagenic according to the OECD 471, 473 and 476 Test Guidelines.

f) Carcinogenicity

No data are available for the carcinogenicity of CTO. However, further testing is not considered necessary because: The substance is not classified for mutagenicity; and There is no evidence from the repeated dose studies that constituents of crude tall oil are able to induce hyperplasia or pre-neoplastic lesions.

g) Reproductive toxicity

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CTO is not classified for reproductive toxicity. No relevant reproductive toxicity or developmental toxicity studies have been conducted for crude tall oil as whole product. However, data are available for the constituent parts of crude tall oil and related substances (unpublished laboratory studies and information published in the public domain). No adverse effects were observed (NOAEL): 1540 mg/kg bodyweight/day (sub-chronic, rat).

h) Specific target organ toxicity (single exposure)

CTO is not considered to cause organ damage through single exposures.

i) Specific target organ toxicity (repeated exposure)

No repeated dose toxicity data are available for crude tall oil as a whole substance. The most conservative NOAEL from available studies on constituents are 335.2 mg/kg body weight/day (sub-chronic, oral route, systemic effects, rat) leading to no classification for specific target organ toxicity for repeated exposure via oral route. The NOAEL value from the available study on the inhalation route is 200 ppm and the LOAEL is 400 ppm (2228 mg/m³) leading to no classification.

j) Aspiration hazard

CTO is not considered to cause aspiration toxicity.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

An extensive literature review was conducted in 2020. Results show there is no substantial evidence to demonstrate CTO or its constituents are identified as having endocrine disrupting properties.

11.2.2 Other information

CTO may contain small amounts of hydrogen sulfide (H₂S). Hydrogen sulfide is very toxic via inhalation and extremely flammable gas and having the hazard statement H330 (Fatal if inhaled).

12 ECOLOGICAL INFORMATION

12.1 Toxicity

CTO is not classed as toxic for the environment.

Acute toxicity for fish:

LL50, 96h, *Danio rerio* (OECD 203): >20 mg/l

NOELR, 96 h: ≥ 6.25 mg/l

Acute toxicity for shellfish:

EL50, 48 h, *Daphnia magna* (water flea) (OECD 201): 32 mg/l

NOELr (48 hours): 6.25 mg/l

NOELr (21 days): > 1 mg/l

Acute toxicity for algae:

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EL50, 72 h, *Desmodesmus subspicatus* (OECD 202): > 100 mg/l
NOELr: ≥ 100 mg/l

12.2 Persistence and degradability

Abiotic degradation:

On the basis of structural examination, none of the constituents of CTO contain functional groups that are susceptible to hydrolysis under conditions relevant to the environment. This fate process will not contribute to a measurable degradative loss of these substances from the environment.
The substance constituents can therefore be considered as stable under hydrolytic conditions.

The rate constant of photo transformation in air for the reaction of crude tall oil with OH⁻ radicals vary between 0.02 days (block C6) and 0.48 days (block C4).

Biodegradation:

Crude tall oil is readily biodegradable.

Five ready biodegradation studies are available for samples of CTO. Ready biodegradation of 79.4 – 83.4 % meeting the '10-day window' criterion (measured as percentage of theoretical oxygen demand, TOD) was achieved in 28 days using a method consistent with OECD Guideline 301 F (manometric respirometer). The constituents of CTO are all naturally occurring metabolites of pine, spruce, aspen and birch and it is expected that the environment is highly acclimatised to these constituents.

12.3 Bioaccumulative potential

The bioconcentration factors for the constituents of CTO is in the range of 3.2 to 14000 (Prediction using BCFBAF v 3.02 based on log Know values. Measured data used when available.) Five of the blocks (A2, C2, C3, E2, E3) do contain some constituents being very bioaccumulative.

12.4 Mobility in soil

No measured data are available for adsorption/desorption coefficient of crude tall oil constituents. Several prediction methods have been used for calculations. The adsorption coefficients for the blocks of (represented by the organic-water partition coefficient, K_{oc}) vary between 6.3E+2 and 1.6E+08. Many of the constituents of crude tall oil, based on their K_{oc}, will partition into organic matter present in suspended sediments and bottom sediments and soils. Adsorption onto sediment and soil may reduce the bioavailability in those media and hence reduce the potential for degradation in sediment and soil. Adsorption onto sediment and soil may lead to the possibility of direct ingestion of the sediment- or soil-bound substance by organisms.

Calculated values for the constituents of crude tall oil were obtained using KOCWIN.

The highest individual K_{oc} was calculated for block 12 (Sisterol and analogues): 4.96E+06

12.5 Results of PBT and vPvB assessment

CTO does not fulfill the criteria for PBT or vPvB and none of its constituents.

12.6 Endocrine disrupting properties

An extensive literature review was conducted in 2020. Results show there is no substantial evidence to demonstrate CTO or its constituents are identified as having endocrine disrupting properties.

12.7 Other adverse effects

No known other effects.

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13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal

Product residues and uncleaned empty containers should be packaged, sealed, labelled, and disposed of or recycled according to relevant national and local regulations. Where large quantities are concerned, consult the supplier. When uncleaned empty containers are passed on, the recipient must be warned of any possible hazard that may be caused by residues. Avoid disposal to sewage/waste water treatment plant.

13.1.2 Waste treatment options

Suitable waste codes:

13 07 03* - Other fuels (as well as mixtures)

Examine possibilities for reutilisation or recycling.

14 TRANSPORT INFORMATION

CTO is not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG).

14.1 UN number or ID number: N/A

14.2 UN proper shipping name: N/A

14.3 Transport hazard class(es): N/A

14.4 Packing group: N/A

14.5 Environmental hazards: N/A

14.6 Special precautions for user: N/A

14.7 Maritime transport in bulk according to IMO instruments: N/A

15 REGULATORY INFORMATION

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

EU regulations:

European parliament and council's regulation (EC) no. 1907/2006 (REACH).

European parliament and council regulation (EC) no. 1272/2008 about classification, labelling and packing of substances and mixtures (CLP).

National regulations:

SAFETY DATA SHEET



SUNPINE

In accordance with Regulation (EC) no. 1907/2006, Annex II
(amended by Regulation (EU) 2020/878)

Crude tall oil (CTO)

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The Swedish Work Environment Authority's provisions on risks in the work environment (AFS 2023:10).

The Swedish Work Environment Authority's provisions on limit values for respiratory exposure (AFS 2023:14).

Waste ordinance (2020:614).

15.2 Chemical safety assessment

A chemical safety assessment has been conducted for this substance. Relevant exposure scenarios are attached to this safety data sheet.

16 OTHER INFORMATION

Abbreviations

AFS:	The Swedish Work Environment Authority's statutes
ATE	Acute Toxicity Estimate (CLP Annex I, Part 3)
CLP	Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
CTO	Crude tall oil
EL50/48h	Effect Level where 50% of the test population is immobilized in 48 h
EL50/72h	Effect Level where 50% of the test population is immobilized in 72 h
Kow	Octanol/water partition coefficient
LL50/96h	Lethal Loading 50% in 96 h
NOAEL	No Observed Adverse Effect Level
NOELr	No Observed Adverse Effect Loading Rate
M-factor	Multiplying factor (CLP Annex I, Part 4)
PBT:	Persistent, Bioaccumulative and Toxic substances. PBT substances comply with the criteria in part 1, annex XIII in Reach.
PNEC	Predicted No Effect Concentration
UVCB:	Substances with unknown or varying compositions, complex reaction products or biological material.
vPvB:	Very persistent and bioaccumulative substances. A vPvB substance complies with the criteria in part 2, annex XIII in REACH.

Meaning of phrases

Skin Sens. 1B: Skin sensitisation, Category 1B

H317: May cause an allergic skin reaction.

Important literature references

Information from REACH registration of the substance.

Classification and labelling register.

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Manufacturer's notes

This safety data sheet has been compiled by SunPine AB in Piteå based on the details available to the company at the date of publication. The information should be seen as a guideline by purchasers of goods from SunPine AB and is meant to be used for health, safety and environmental purposes. The information cannot be seen as a specification or as a guarantee for any particular property in the product.

Document history

Version	Date	Comment
8	09/12/2024	CAS number added Changes in classification and P-phrases Added ATE:values in section 3. Changed identified uses and exposure scenarios Changed DNEL and PNEC values in section 8 Added information in sections 11 and 12
7	10/02/2020	Revision of section 8, 9, 15.

Annexes - Exposure scenario

ES 2: Industrial use - Fractionation of CTO

ES 3: Formulation - Formulation of fuel

ES 4: Industrial use - Use of CTO as a fuel at industrial sites

ES 5: Formulation – Formulations

ES 6: Industrial use - Industrial use of formulations