

Safety Data Sheet

ACCORDING TO COMMISSION REGULATION (EU) 2020/878 and UK REACH

Date 14/08/2024. Version 4

XO1505HO

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

1.1 Product identifier

Product name	XO1505HO
Trade name	PHO - fragranced
Product description	Liquid fuel additive
Contains	Hydrocarbons, C10, aromatics, <1% naphthalene Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol Ethyl butyrate Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.] ethyl 3-methyl-3-phenyloxirane-2-carboxylate 2-Methyl-3-phenylacrylaldehyde α,α' -propylenedinitrilodi-o-cresol Hydrocarbons, C9, aromatics

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

Identified use(s)	Liquid fuel additive.
Uses advised against	Follow supplier's recommendations on correct use of the product.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	Fuel Additive Science Technologies Limited
Address	Unit 29, Atcham Business Park, Upton Magna, Shrewsbury, Shropshire
Postcode	SY4 4UG
Telephone	+44 (0)1743 761415
E-mail address of competent person responsible	info@fastexocet.co.uk

1.4 Emergency telephone number

In case of emergency, call	+44 (0) 333 333 9962 (UK number, 24 hours, 7 days)
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 (CLP) and GB CLP

Flam. Liq. 3	H226	Flammable liquid and vapour
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Eye Dam. 1	H318	Causes serious eye damage.
STOT SE 3	H336	May cause drowsiness or dizziness.
Carc. 2	H351	Suspected of causing cancer
Repr. 1B	H360FD	May damage fertility. May damage the unborn child.
Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard pictogram(s)



Signal Word

Danger

Hazard Statement(s)

H226	Flammable liquid and vapour
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer
H360FD	May damage fertility. May damage the unborn child.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.

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P242	Use non-sparking tools
P243	Take action to prevent static discharges
P261	Avoid breathing fume/vapours.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P331	Do NOT induce vomiting.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use foam, carbon dioxide or dry powder to extinguish
P391	Collect spillage
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool
P405	Store locked up.
P501	Dispose of contents/container in accordance with local, state or national legislation.

Supplemental information on the label

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Supplementary Hazard Information (EU) EUH066: Repeated exposure may cause skin dryness or cracking.

Hazardous components which must be on the label

Hydrocarbons, C10, aromatics, <1% naphthalene
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butylphenol
Ethyl butyrate
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]
ethyl 3-methyl-3-phenyloxirane-2-carboxylate
2-Methyl-3-phenylacrylaldehyde
 α,α' -propylenedinitrilodi-o-cresol Hydrocarbons, C9, aromatics

2.3 Other hazards

Spillages make surfaces slippery.

Contains reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol which is under assessment as Persistent, Bioaccumulative and Toxic (PBT list).

This mixture contains p-tert-butylphenol that is identified as endocrine disruptor with environmental effects.

This mixture contains 2,6-Di-tert-butyl-p-cresol that is identified as endocrine disruptor with human health effects.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical name	Identification Number(s) CAS No. / EC No. / Index No.	REACH Registration No.	% [weight]	Classification in accordance with Regulation (EC) No 1272/2008 (CLP)	Additional information*
Hydrocarbons, C10 aromatics, <1% naphthalene	64742-94-5 (**) 918-811-1 -	01-2119463583-34-0001 UK-01-0329875101-1-0002	50 – 70	Asp. Tox. 1 H304 STOT SE 3 H336 Aquatic Chronic 2 H411	EUH066 WEL
Benzaldehyde	100-52-7 202-860-4 605-012-00-5	-	≤ 10	Acute Tox. 4 H302	WEL
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	- 907-745-9 -	01-2119538013-51	5 – 10	Eye Dam. 1 H318 Aquatic Acute 1 H400 Aquatic Chronic 1 H410	M (acute) =1 M (chronic) =1
Ethyl butyrate	105-54-4 203-306-4 -	-	≤ 5	Flam. Liq. 3 H226 Eye Dam. 2 H318	-
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	919-284-0 - -	01-2119463588-24	3 – 5	Asp. Tox. 1 H304 Carc. 2 H351 STOT SE 3 H336 Aquatic Chronic 2 H411	EUH066 WEL

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Chemical name	Identification Number(s) CAS No. / EC No. / Index No.	REACH Registration No.	% [weight]	Classification in accordance with Regulation (EC) No 1272/2008 (CLP)	Additional information*
4-Dodecylphenol, ethylenediamine, formaldehyde polymer, compd. With dibutylaminomethanol	67953-82-6 - -	-	≤ 3	Eye Irrit. 2 H319 Skin Irrit. 2 H315	-
3-methylbutyl acetate	123-92-2 204-662-3 607-130-00-2	-	≤ 3	Flam. Liq. 3 H226	EUH066 WEL
3-Ethoxy-4-hydroxybenzaldehyde	121-32-4 204-464-7 -	-	≤ 3	Eye Dam. 2 H319	-
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	77-83-8 201-061-8 -	-	≤ 2	Skin Sens. 1B H317 Aquatic Chronic 2 H411	-
2-Methyl-3-phenylacrylaldehyde	101-39-3 202-938-8 -	-	≤ 2	Skin Sens. 1 H317	-
Ethyl acetate	141-78-6 205-500-4 607-022-00-5	-	≤ 2	Flam. Liq 2 H225 Eye Dam. 2 H319 STOT SE 3 H336	EUH066 WEL
p-methoxybenzaldehyde	123-11-5 204-602-6 -	-	≤ 2	Aquatic Chronic 3 H412	-
α,α'-propylenedinitrilodi-o-cresol	94-91-7 202-374-2 -	01-2119958970-25	1 – 2	Acute Tox. 4 H302 Skin Sens. 1 H317 Repr. 1B H360FD Aquatic Chronic 3 H412	-
Hydrocarbons, C10-C13, nalkanes, isoalkanes, cyclics, less than 2% aromatics	- 918-481-9 -	UK-01-0468758243-9	1 – 2	Asp. Tox. 1 H304	EUH066
2-Ethylhexan-1-ol	104-76-7 203-234-3 -	UK-01-2180099932-4	< 1	Acute Tox. 4 H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT SE3 H335	WEL
Naphthalene	91-20-3 202-249-5 601-052-00-2	Compliant	< 0.5	Acute Tox. 4 H302 Carc. 2 H351 Aquatic Acute 1 H400 Aquatic Chronic 1 H410	WEL
Distillates (petroleum), hydrotreated heavy paraffinic	64742-95-6 918-668-5 -	UK-01-1759217276-5	< 0.5	Asp. Tox. 1, H304 Carc. 1B; H350 (***)	EUH066
4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one	14901-07-6 238-969-9 -	-	≤ 0.2	Aquatic Chronic 2 H411	-

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Chemical name	Identification Number(s) CAS No. / EC No. / Index No.	REACH Registration No.	% [weight]	Classification in accordance with Regulation (EC) No 1272/2008 (CLP)	Additional information*
Hexan-1-ol	111-27-3 203-852-3 603-059-00-6	-	≤ 0.2	Acute Tox. 4 H302	WEL
Hydrocarbons, C9, aromatics	128601-23-0, 64742-95-6 (**) 918-668-5 -	01-2119455851-35	≤ 0.1	Flam. Liq. 3, H226 Asp. Tox. 1, H304 STOT SE 3, H335 STOT SE 3, H336 Aquatic Chronic 2, H411	EUH066 WEL
1,2,4-trimethylbenzene	95-63-6 202-436-9 601-043-00-3	-	< 0.1	Flam. Liq. 3 H226 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Acute Tox. 4 H332 STOT SE 3 H335 Aquatic Chronic 2 H411	WEL
p-tert-butylphenol (****)	98-54-4 202-679-0 604-090-00-8	-	< 0.05	Skin Irrit. 2, H315 Eye Dam. 1, H318 Repr. 2, H361f Aquatic Chronic 1, H410	WEL M = 1
2,6-Di-tert-butyl-p-cresol (*****)	128-37-0 204-881-4 -	-	< 0.005	Aquatic Acute 1 H400 Aquatic Chronic 1 H410	M (acute) =1 M (chronic) =1 WEL

* Includes information relating to specific concentration limits, M-factors, ATEs, particle characteristics, supplementary hazard information, and indicates workplace exposure limits shown in Section 8.

** Identified as CAS 64742-94-5 and 64742-95-6 outside the EU.

*** Note L is applied by the supplier, Carc. 1B not required. All of the oils in this product have been demonstrated to contain less than 3% extractables by the IP 346 test. This product contains mineral oils which are severely refined and not considered carcinogenic.

**** Identified as endocrine disruptor with environmental effects.

***** Identified as endocrine disruptor with human health effects.

For full text of H-statements, see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

If medical advice is needed, have the safety data sheet or label to hand. If exposed or concerned, get medical advice/attention.

Following inhalation

May cause drowsiness or dizziness. Remove person to fresh air and keep comfortable for breathing. If symptoms persist, seek medical attention.

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Following skin contact (or hair)	May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking. Wash with plenty of water. Take off immediately all contaminated clothing. Rinse skin with water [or shower]. If skin irritation or rash occurs, get medical advice/attention.
Following eye contact	Causes serious eye damage. Immediately call a POISON CENTER or doctor. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Following ingestion	May be fatal if swallowed and enters airways. Immediately call a POISON CENTER/doctor. Do NOT induce vomiting. If vomiting occurs naturally, the patient should lean forward to reduce the risk of aspiration.
Self-protection of the first aider	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury, and surroundings.

4.2 Most important symptoms and effects, both acute and delayed

May be fatal if swallowed and enters airways. May cause an allergic skin reaction. Causes serious eye damage. Repeated exposure may cause skin dryness or cracking. May cause drowsiness or dizziness.

Suspected of causing cancer. May damage fertility. May damage the unborn child.

4.3 Indication of any immediate medical attention and special treatments needed

Treat symptomatically. If swallowed, patient should be monitored for signs of breathing difficulty as effects of aspiration may be delayed for up to 48 hours. If breathing is laboured, oxygen should be administered by qualified personnel.

SECTION 5: Firefighting measures

5.1 Extinguishing Media

Suitable extinguishing media: Foam, carbon dioxide (CO₂) or dry powder.

Unsuitable extinguishing media: Do not use water jet or wet chemical fire extinguisher.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapour.

Vapour may form explosive mixture with air. Vapour is heavier than air and may accumulate in confined spaces.

This material is toxic to aquatic life with long lasting effects; fire water contaminated with the material must be contained. Do not empty into drains.

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Hazardous combustion products

Combustion may liberate toxic fumes: Carbon monoxide, carbon dioxide, nitrogen oxides, various hydrocarbons and formaldehyde.

5.3 Advice for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Evacuate area. Move containers from the fire area if it is safe to do so.

Fight any fire from a safe distance. Cool containers exposed to flames with plenty of water until well after the fire is out.

This material is toxic to aquatic life with long lasting effects; do not allow product or run-off to enter drains, sewers or watercourses.

Flash point: 53°C.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas as a priority. Ensure adequate ventilation. Do not touch or walk through spilt material. Avoid contact with skin, eyes, or clothing. Avoid breathing fume/vapours. The vapour is heavier than air; it will concentrate in low lying areas, beware of pits and confined spaces. No smoking.

For emergency responders

Keep unnecessary personnel away. Wear suitable protective clothing appropriate respirator when ventilation is inadequate (see Section 8). Do not touch or walk through spilt material. Avoid contact with skin, eyes, or clothing. Avoid breathing fume/vapours. The vapour is heavier than air; it will concentrate in low lying areas, beware of pits and confined spaces.

6.2 Environmental precautions

Toxic to aquatic life with long lasting effects. Collect spillage. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.

6.3 Methods and materials for containment and cleaning up

For containment

Stop the leak if it is safe to do so. Contain the spillage with sand, earth or any suitable adsorbent material.

For cleaning up

Use sand, earth or any suitable non-combustible adsorbent material to adsorb spillages. Using non-sparking tools

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transfer the contaminated absorbent material into a UN approved container for disposal. Containers should be sealed before being disposed of via an authorised waste disposal contractor.

Other advice

Caution – spillage area may be slippery. Collect spillage. Avoid release to the environment.

6.4 Reference to other sections

See Section 8 for personal protective equipment. See Section 13 for waste disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Avoid breathing fume/vapours. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Take off contaminated clothing and wash it before reuse. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection (see Section 8).

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use non-sparking tools. Take action to prevent static discharges.

Avoid release to the environment. Dispose of contents/container in accordance with local, state or national legislation.

7.2 Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Store locked up in a well-ventilated place. Keep cool and keep container tightly closed. Store only in the original container. Empty containers retain product residue and can be hazardous. Protect from direct sunlight and from frost. Keep away from incompatible materials.

Keep away from oxidising agents. Avoid contact with acids, alkalis, oxidising agents, aluminium and iron.

Maximum handling temperature: 50 °C.

7.3 Specific end uses(s)

Liquid fuel additive.

Follow supplier's recommendations on correct use of the product.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Workplace exposure limits

Substance	Source	Limit value - 8 hours		Limit value - short term*		Comments
		ppm	mg/m ³	ppm	mg/m ³	
Hydrocarbons, C10 aromatics, <1% naphthalene	EH 40	-	500	-	-	Total hydrocarbon vapour (1)
Benzaldehyde	GESTIS ILV	1	4,4	4 (2)	17,4 (2)	Finland
Hydrocarbons C10, aromatics, > 1% naphthalene (Solvent naphtha (petroleum), heavy arom.)	EH 40	-	500	-	-	Total hydrocarbon vapour (1)
3-methylbutyl acetate	GESTIS ILV	50	270	100	540	European Union (3)
Ethyl acetate	GESTIS ILV	200	734	400	1468	European Union (3)
	EH 40	200	734	400	1468	United Kingdom
2-Ethylhexan-1-ol	GESTIS ILV	1	5.4	-	-	Ireland
	EH40	1	5.4	-	-	UK
Naphthalene	GESTIS ILV	10	50	-	-	Ireland
Hexan-1-ol	GESTIS ILV	25	105	25	105	Germany (AGS) (4)
Hydrocarbons, C9, aromatics	EH 40	-	500	-	-	Total hydrocarbon vapour (1)
1,2,4-trimethylbenzene	GESTIS ILV	20	100	-	-	European Union
Trimethylbenzenes, all isomers or mixtures	EH 40	25	125	-	-	UK
p-tert-butylphenol	GESTIS ILV	0.08	0.5	0.16	1	European Union (5)
2,6-Di-tert-butyl-p-cresol	GESTIS ILV	-	2	-	-	Ireland
	EH 40	-	10	-	-	United Kingdom

Comments

* Short term is 15 minutes unless otherwise specified

1 Hydrocarbon solvents supplied as a complex mixture, HSE ACTS procedure, see EH40, paragraphs 84-88

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- 2 Ceiling limit value
3 Indicative occupational exposure limit value (IOELV)
4 Inhalable fraction and vapour
5 Austria, Denmark, Germany, Switzerland

Recommended Naphthalene CoRAP: Substance Evaluation Conclusion and Report

Derived No-Effect Level (DNELs) Workers

Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
Hydrocarbons, C10 aromatics, <1% naphthalene	Inhalation	No hazard identified	No hazard identified	151 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	12.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Benzaldehyde	Inhalation	No hazard identified	No hazard identified	9.8 mg/m ³ irritation (respiratory tract)	9.8 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	-	1.14 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	Inhalation	-	-	3.5 mg/m ³ repeated dose toxicity	-
	Dermal	-	-	0.500 mg/kg bw/day repeated dose toxicity	-
	Eyes	High hazard (no threshold derived)	High hazard (no threshold derived)	High hazard (no threshold derived)	High hazard (no threshold derived)
Ethyl butyrate	Inhalation	Low hazard (no threshold derived)	Low hazard (no threshold derived)	49.3 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)
	Dermal	Low hazard (no threshold derived)	Low hazard (no threshold derived)	2.33 mg/kg bw/day effect on fertility	Low hazard (no threshold derived)
	Eyes	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	Inhalation	No hazard identified	No hazard identified	151 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	12.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
3-methylbutyl acetate	Inhalation	No hazard identified	No hazard identified	20.8 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	2.95 mg/kg bw/day repeated dose toxicity	Low hazard (no threshold derived)
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
3-Ethoxy-4-hydroxybenzaldehyde	Inhalation	98 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)	49 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)
	Dermal	No hazard identified	No hazard identified	7 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	Inhalation	35.26 mg/m ³ repeated dose toxicity	88.16 mg/m ³ repeated dose toxicity	17.63 mg/m ³ repeated dose toxicity	44.08 mg/m ³ repeated dose toxicity

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Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
	Dermal	10 mg/kg bw/day repeated dose toxicity	25 mg/cm ² repeated dose toxicity	5 mg/kg bw/day repeated dose toxicity	12.5 mg/cm ² repeated dose toxicity
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Ethyl acetate	Inhalation	1468 mg/m ³ irritation (respiratory tract)	1468 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	Low hazard (no threshold derived)	63 mg/kg bw/day irritation (respiratory tract)	No hazard identified
	Eyes	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
p-methoxybenzaldehyde	Inhalation	No hazard identified	No hazard identified	5.88 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	3.33 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
α,α'-propylenedinitrilo-di-o-cresol	Inhalation	No hazard identified	No hazard identified	3.11 mg/m ³ developmental toxicity/teratogenicity	No hazard identified
	Dermal	No hazard identified	High hazard (no threshold derived)	0.880 mg/kg bw/day developmental toxicity/teratogenicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
2-Ethylhexan-1-ol	Inhalation	Low hazard (repeated dose toxicity)	53.2 mg/m ³ irritation (respiratory tract)	12.8 mg/m ³ repeated dose toxicity	53.2 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	Medium hazard (no threshold derived)	23 mg/kg bw/day (repeated dose toxicity)	Medium hazard (no threshold derived)
	Eyes	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
Naphthalene	Inhalation	Low hazard (no threshold derived)	No hazard identified	25 mg/m ³ repeated dose toxicity	25 mg/m ³ irritation (respiratory tract)
	Dermal	Low hazard (no threshold derived)	No hazard identified	3.57 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Distillates (petroleum), hydrotreated heavy paraffinic	Inhalation	No hazard identified	No hazard identified	2.73 mg/m ³ repeated dose toxicity	5.58 mg/m ³ repeated dose toxicity
	Dermal	No hazard identified	No hazard identified	0.970 mg/kg bw/day repeated dose toxicity	High hazard (no threshold derived)
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one	Inhalation	-	-	2.498 mg/m ³ repeated dose toxicity	-
	Dermal	-	-	2.191 mg/kg bw/day repeated dose toxicity	-
	Eyes	Hazard unknown (no further information necessary)			
Hexan-1-ol	Inhalation	No hazard identified	No hazard identified	99 mg/m ³ repeated dose toxicity	210 mg/m ³
	Dermal	No hazard identified	No hazard identified	28 mg/kg bw/day repeated dose toxicity	0.190 mg/cm ² repeated dose toxicity
	Eyes	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)

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Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
Hydrocarbons, C9, aromatics	Inhalation	No hazard identified	No hazard identified	151 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	12.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified
1,2,4-trimethylbenzene	Inhalation	100 mg/m ³	100 mg/m ³	100 mg/m ³ repeated dose toxicity	100 mg/m ³ irritation (respiratory tract)
	Dermal	-	-	16 171 mg/kg bw/day	-
	Eyes	-	-	-	-
p-tert-butylphenol	Inhalation	Low hazard (no threshold derived)	No hazard identified	0.500 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	0.071 mg/kg bw/day repeated dose toxicity	Medium hazard (no threshold derived)
	Eyes	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
2,6-Di-tert-butyl-p-cresol	Inhalation	Hazard unknown	Hazard unknown	1.76 mg/m ³ repeated dose toxicity	Hazard unknown
	Dermal	No hazard identified	No hazard identified	0.500 mg/kg bw/day repeated dose toxicity	No hazard identified
	Eyes	No hazard identified	No hazard identified	No hazard identified	No hazard identified

Derived No-Effect Level (DNELs) General population

Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
Hydrocarbons, C10 aromatics, <1% naphthalene	Inhalation	No hazard identified	No hazard identified	32 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	7.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	7.5 mg/kg bw/day repeated dose toxicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Benzaldehyde	Inhalation	No hazard identified	No hazard identified	4.9 mg/m ³ irritation (respiratory tract)	4.9 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	-	0.670 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	0.670 mg/kg bw/day repeated dose toxicity	-
	Eye	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	Inhalation	-	-	-	-
	Dermal	-	-	-	-
	Oral	-	-	-	-
	Eye	-	-	-	-
Ethyl butyrate	Inhalation	Low hazard (no threshold derived)	Low hazard (no threshold derived)	7.4 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)
	Dermal	Low hazard (no threshold derived)	Low hazard (no threshold derived)	0.833 mg/kg bw/day effect on fertility	Low hazard (no threshold derived)

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Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
	Oral	Low hazard (no threshold derived)	-	0.833 mg/kg bw/day effect on fertility	-
	Eye	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
Hydrocarbons, C10, aromatics, >1% naphthalene [Solvent naphtha (petroleum), heavy arom.]	Inhalation	No hazard identified	No hazard identified	32 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	7.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	7.5 mg/kg bw/day repeated dose toxicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
3-methylbutyl acetate	Inhalation	No hazard identified	No hazard identified	5.1 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	1.47 mg/kg bw/day repeated dose toxicity	Low hazard (no threshold derived)
	Oral	-	-	1.47 mg/kg bw/day repeated dose toxicity	Low hazard (no threshold derived)
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
3-Ethoxy-4-hydroxybenzaldehyde	Inhalation	17.5 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)	8.75 mg/m ³ repeated dose toxicity	Low hazard (no threshold derived)
	Dermal	No hazard identified	No hazard identified	2.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	2.5 mg/kg bw/day repeated dose toxicity	-
	Eye	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	Inhalation	8.7 mg/m ³ repeated dose toxicity	21.74 mg/m ³ repeated dose toxicity	2.17 mg/m ³ repeated dose toxicity	5.43 mg/m ³ repeated dose toxicity
	Dermal	5 mg/kg bw/day repeated dose toxicity	12.5 mg/cm ² repeated dose toxicity	1.25 mg/kg bw/day repeated dose toxicity	3.13 mg/cm ² repeated dose toxicity
	Oral	5 mg/kg bw/day repeated dose toxicity	-	1.25 mg/kg bw/day repeated dose toxicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Ethyl acetate	Inhalation	734 mg/m ³ irritation (respiratory tract)	734 mg/m ³ irritation (respiratory tract)	367 mg/m ³ irritation (respiratory tract)	367 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	No hazard identified	37 mg/kg bw/day irritation (respiratory tract)	Low hazard (no threshold derived)
	Oral	No hazard identified	-	4.5 mg/kg bw/day repeated dose toxicity	-
	Eye	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)
p-methoxybenzaldehyde	Inhalation	No hazard identified	No hazard identified	1.74 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	2 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	1 mg/kg bw/day repeated dose toxicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
α,α'-propylenedinitrilo-di-o-cresol	Inhalation	No hazard identified	No hazard identified	0.760 mg/m ³ developmental toxicity/teratogenicity	No hazard identified

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		Systemic effects	Local effects	Systemic effects	Local effects
	Dermal	No hazard identified	High hazard (no threshold derived)	0.440 mg/kg bw/day developmental toxicity/teratogenicity	No hazard identified
	Oral	No hazard identified	-	0.220 mg/kg bw/day developmental toxicity/teratogenicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
2-Ethylhexan-1-ol	Inhalation	Low hazard (no threshold derived)	26.6 mg/m ³ irritation (respiratory tract)	2.3 mg/m ³ repeated dose toxicity	26.6 mg/m ³ irritation (respiratory tract)
	Dermal	No hazard identified	Medium hazard (no threshold derived)	11.4 mg/kg bw/day repeated dose toxicity	Medium hazard (no threshold derived)
	Oral	No hazard identified	-	1.1 mg/kg bw/day repeated dose toxicity	-
	Eye	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
Naphthalene	Inhalation	No hazard identified	No hazard identified	No hazard identified	No hazard identified
	Dermal	No hazard identified	No hazard identified	No hazard identified	No hazard identified
	Oral	No hazard identified	No hazard identified	No hazard identified	No hazard identified
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Distillates (petroleum), hydrotreated heavy paraffinic	Inhalation	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	1.19 mg/m ³ repeated dose toxicity
	Dermal	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)
	Oral	Hazard unknown (no further information necessary as no exposure expected)	-	0.740 mg/kg bw/day repeated dose toxicity	-
	Eye	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)	Hazard unknown (no further information necessary as no exposure expected)
4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one	Inhalation	-	-	0.6214 mg/m ³ repeated dose toxicity	-
	Dermal	-	-	0.540348 mg/kg bw/day repeated dose toxicity	-
	Oral	-	-	4.383 mg/kg bw/day repeated dose toxicity	-
	Eye	Hazard unknown (no further information necessary)			
Hexan-1-ol	Inhalation	No hazard identified	No hazard identified	24.5 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	14 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	14 mg/kg bw/day repeated dose toxicity	-
	Eye	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)	Low hazard (no threshold derived)

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Substance	Route	Acute/short-term exposure		Long-term exposure	
		Systemic effects	Local effects	Systemic effects	Local effects
Hydrocarbons, C9, aromatics	Inhalation	No hazard identified	No hazard identified	32 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	No hazard identified	No hazard identified	7.5 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	7.5 mg/kg bw/day repeated dose toxicity	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified
1,2,4-trimethylbenzene	Inhalation	29.4 mg/m ³	29.4 mg/m ³	29.4 mg/m ³ repeated dose toxicity	29.4 mg/m ³ irritation (respiratory tract)
	Dermal	-	-	9 512 mg/kg bw/day repeated dose toxicity	-
	Oral	-	-	15 mg/kg bw/day	-
	Eye	-	-	-	-
p-tert-butylphenol	Inhalation	Low hazard (no threshold derived)	No hazard identified	0.090 mg/m ³ repeated dose toxicity	No hazard identified
	Dermal	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	0.026 mg/kg bw/day repeated dose toxicity	Medium hazard (no threshold derived)
	Oral	Low hazard (no threshold derived)	-	0.026 mg/kg bw/day repeated dose toxicity	-
	Eye	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)	Medium hazard (no threshold derived)
2,6-Di-tert-butyl-p-cresol	Inhalation	Hazard unknown	Hazard unknown	0.435 mg/m ³ repeated dose toxicity	Hazard unknown
	Dermal	No hazard identified	No hazard identified	0.250 mg/kg bw/day repeated dose toxicity	No hazard identified
	Oral	No hazard identified	-	0.250 mg/kg bw/day	-
	Eye	No hazard identified	No hazard identified	No hazard identified	No hazard identified

Predicted No Effect Concentration (PNECs)

Substance	Hydrocarbons, C10 aromatics, <1% naphthalene	Benzaldehyde	Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	Ethyl butyrate
Aqua, fresh water	No data available: testing technically not feasible	0.000410 mg/L	0.000300 mg/L	0.0297 mg/L
Intermittent releases, fresh water	No data available: testing technically not feasible	0.0107 mg/L	-	1 mg/L
Aqua, marine water	No data available: testing technically not feasible	0.000041 mg/L	0.000030 mg/L	0.00297 mg/L
Intermittent releases, marine water	No data available: testing technically not feasible	-	-	0.100 mg/L
Sewage treatment plants (STP)	No data available: testing technically not feasible	7.59 mg/L	2.4 mg/L	23.6 mg/L
Sediment, fresh water	No data available: testing technically not feasible	0.004 mg/kg sediment dw	0.090 mg/kg sediment dw	0.173 mg/kg sediment dw
Sediment, marine water	No data available: testing technically not feasible	0.000400 mg/kg sediment dw	0.009 mg/kg sediment dw	0.0173 mg/kg sediment dw
Air	No hazard identified	No hazard identified	-	No hazard identified

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Substance	Hydrocarbons, C10 aromatics, <1% naphthalene	Benzaldehyde	Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	Ethyl butyrate
Aqua, fresh water	No data available: testing technically not feasible	0.000410 mg/L	0.000300 mg/L	0.0297 mg/L
Intermittent releases, fresh water	No data available: testing technically not feasible	0.0107 mg/L	-	1 mg/L
Soil	No data available: testing technically not feasible	0.000500 mg/kg soil dw	0.044 mg/kg soil dw	0.0171 mg/kg soil dw
Hazard for Predators	No potential to cause toxic effects if accumulated (in higher organisms) via the food chain	No potential for bioaccumulation	8.33 mg/kg food	No potential for bioaccumulation

Substance	Hydrocarbons, C10 aromatics, >1% naphthalene (Solvent naphta (petroleum), heavy arom.)	3-methylbutyl acetate	3-Ethoxy-4-hydroxybenzaldehyde	ethyl 3-methyl-3-phenyloxirane-2-carboxylate
Aqua, fresh water	Testing technically not feasible	0.011 mg/L	0.118 mg/L	0.0084 mg/L
Intermittent releases, fresh water	Testing technically not feasible	0.110 mg/L	-	0.084 mg/L
Aqua, marine water	Testing technically not feasible	0.001 – 0.0011 mg/L	0.0000118 mg/L	0.0084 mg/L
Intermittent releases, marine water	Testing technically not feasible	0.010 mg/L	-	-
Sewage treatment plants (STP)	Testing technically not feasible	30 mg/L	10 mg/L	10 mg/L
Sediment, fresh water	Testing technically not feasible	0.335 mg/kg sediment dw	15 mg/kg sediment dw	0.214 mg/kg sediment dw
Sediment, marine water	Testing technically not feasible	0.0335 – 0.034 mg/kg sediment dw	1.5 mg/kg sediment dw	0.0214 mg/kg sediment dw
Air	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Soil	Testing technically not feasible	0.060 mg/kg soil dw	2.923 mg/kg soil dw	0.0378 mg/kg soil dw
Hazard for Predators	No potential for bioaccumulation	No potential for bioaccumulation	No potential for bioaccumulation	23.3 mg/kg food

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Substance	Ethyl acetate	p-methoxybenzaldehyde	α,α' -propylenedinitrildi-o-cresol	Hydrocarbons, C10-C13, nalkanes, isoalkanes, cyclics, less than 2% aromatics
Aqua, fresh water	0.240 mg/L	0.013 mg/L	0.00112 mg/L	Testing technically not feasible
Intermittent releases, fresh water	1.65 mg/L	0.8111 mg/L	0.0112 mg/L	Testing technically not feasible
Aqua, marine water	0.024 mg/L	0.0000013 mg/L	0.000112 mg/L	Testing technically not feasible
Intermittent releases, marine water	-	-	0.00112 mg/L	Testing technically not feasible
Sewage treatment plants (STP)	650 mg/L	0.0085 mg/L	0.500 mg/L	Testing technically not feasible
Sediment, fresh water	1.15 mg/kg sediment dw	0.0598 mg/kg sediment dw	56.8 mg/kg sediment dw	Testing technically not feasible
Sediment, marine water	115 mg/kg sediment dw	0.00598 mg/kg sediment dw	5.68 mg/kg sediment dw	Testing technically not feasible
Air	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Soil	0.148 mg/kg soil dw	0.00432 mg/kg soil dw	11.4 mg/kg soil dw	Testing technically not feasible
Hazard for Predators	200 mg/kg food	No potential for bioaccumulation	No potential for bioaccumulation	No potential for bioaccumulation

Substance	2-Ethylhexan-1-ol	Naphthalene	Distillates (petroleum), hydrotreated heavy paraffinic	4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one
Aqua, fresh water	0.017 mg/L	0.0024 mg/L	Testing technically not feasible	0.00146 mg/L
Intermittent releases, fresh water	0.17 mg/L	0.020 mg/L	Testing technically not feasible	0.0146 mg/L
Aqua, marine water	0.0017 mg/L	0.0024 mg/L	Testing technically not feasible	0.000146 mg/L
Intermittent releases, marine water	No data available	No data available	Testing technically not feasible	-
Sewage treatment plants (STP)	10 mg/L	2.9 mg/L	Testing technically not feasible	0.0428 mg/L
Sediment, fresh water	0.284 mg/Kg sediment dw	0.0672 mg/Kg sediment dw	Testing technically not feasible	22.451 mg/kg sediment dw
Sediment, marine water	0.0284 mg/Kg sediment dw	0.0672 mg/Kg sediment dw	Testing technically not feasible	22.451 mg/kg sediment dw
Air	No hazard identified	No hazard identified	No hazard identified	No hazard identified
Soil	0.047 mg/Kg soil dw	0.0533 mg/kg soil dw	Testing technically not feasible	10.466 mg/kg soil dw
Hazard for Predators	55 mg/kg food	No potential for bioaccumulation	No potential for bioaccumulation	No potential for bioaccumulation

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Substance	Hexan-1-ol	Hydrocarbons, C9, aromatics	1,2,4-trimethylbenzene	p-tert-butylphenol	2,6-Di-tert-butyl-p-cresol
Aqua, fresh water	0.260 mg/L	Testing technically not feasible	0.120 mg/L	0.010 mg/L	0.000199 mg/L
Intermittent releases, fresh water	-	Testing technically not feasible	0.120 mg/L	0.048 mg/L	0.00199 mg/L
Aqua, marine water	0.026 mg/L	Testing technically not feasible	0.120 mg/L	0.001 mg/L	0.00000199 mg/L
Intermittent releases, marine water	-	Testing technically not feasible	-	-	-
Sewage treatment plants (STP)	No hazard identified	Testing technically not feasible	2.41 mg/L	1.5 mg/L	0.017 mg/L
Sediment, fresh water	No hazard identified	Testing technically not feasible	13.56 mg/kg sediment dw	0.270 mg/kg sediment dw	0.00045819 mg/kg sediment dw
Sediment, marine water	No hazard identified	Testing technically not feasible	13.56 mg/kg sediment dw	0.027 mg/kg sediment dw	0.04582 mg/kg sediment dw
Air	No hazard identified	No hazard identified	-	No hazard identified	No hazard identified
Soil	0.120 mg/kg soil dw	Testing technically not feasible	2.34 mg/kg soil dw	0.250 mg/kg soil dw	0.0539 mg/kg soil dw
Hazard for Predators	No potential for bioaccumulation	No potential for bioaccumulation	-	46.67 mg/kg food	0.01667 mg/kg food

8.2 Exposure controls

Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction, to minimise exposure to vapours.

Individual protection measures, such as personal protective equipment

Eye/face protection



Goggles or safety glasses with side shields giving complete protection to eyes. (EN 166) or face shield.

Skin protection
Hand protection



Chemical resistant gloves (EN 374). Contact glove supplier to confirm suitable glove material, thickness, and breakthrough times. If contact with forearms is likely, wear gauntlet-style gloves.

Other

Long sleeve chemical resistant protective clothing. Plastic apron. Nitrile rubber boots

Respiratory protection



In the case of insufficient ventilation, wear respiratory equipment. Suitable respiratory protection for lower concentrations or short-term effect: Organic vapour filter type ABEK-P3 (EN 14387).

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Thermal hazards

Wear suitable temperature resistant gloves and protective clothing if the product is heated.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Inform environmental manager of all incidents involving this product.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

(a) Physical state	Liquid
(b) Colour	Amber
(c) Odour	Aromatic
Odour Threshold	Not available.
(d) Melting point/freezing point	Hydrocarbons, C10, aromatics, <1% naphthalene: -51 °C at 101.325 kPa. Pour point: <-10 °C (ASTM D 5950)
(e) Boiling point or initial boiling point and boiling range	Hydrocarbons, C10, aromatics, <1% naphthalene: 160 - 220 °C (ASTM D 86)
(f) Flammability	Flammable liquid and vapour
(g) Lower and upper explosion limit	Hydrocarbons, C10, aromatics, <1% naphthalene: 0.6 - 7.0 % v/v (calculated)
(h) Flash point	53 °C
(i) Auto-ignition temperature	Hydrocarbons, C10, aromatics, <1% naphthalene: > 400 °C
(j) Decomposition temperature	Not available
(k) pH	Not available.
(l) Kinematic viscosity	1.29 cSt at 40°C
(m) Solubility	Insoluble in water.
(n) Partition coefficient n-octanol/water (log value)	Not available.
(o) Vapour pressure	Hydrocarbons, C10, aromatics, <1% naphthalene: 0.09 kPa at 20°C
(p) Density and/or relative density	0.9225 g/cm ³ at 15°C
(q) Relative vapour density	> 1 (air = 1)
(r) Particle characteristics	Not applicable

9.2 Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No hazardous reactions expected during normal use.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

Avoid contact with acids, alkalis, oxidising agents, aluminium and iron.

10.6. Hazardous decomposition products

Combustion may liberate toxic fumes: carbon monoxide, carbon dioxide, nitrogen oxides, formaldehyde and various hydrocarbons.

SECTION 11: Toxicological information

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

(a) acute toxicity

acute toxicity - oral	Not classified. Based on the available data, the classification criteria are not met.
acute toxicity - dermal	Not classified. Based on the available data, the classification criteria are not met.
acute toxicity - inhalation	Not classified. Based on the available data, the classification criteria are not met.

The following data are for the relevant product component:

Component	Acute Toxicity		
	Oral	Dermal	Inhalation
Benzaldehyde	LD ₅₀ >300 - <2000 mg/Kg bw	LD ₅₀ > 2000 mg/Kg bw	LC ₅₀ >1000 - <5000 mg/m ³
α,α'-propylenedinitrilodi-o-cresol	LD ₅₀ 1350 mg/Kg bw	LD ₅₀ > 2000 mg/Kg bw	No available

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(b) skin corrosion/irritation	Not classified. Based on the available data, the classification criteria are not met.
(c) serious eye damage/irritation	Eye Dam. 1. Causes serious eye damage.
(d) respiratory or skin sensitisation respiratory sensitisation	Not classified. Based on the available data, the classification criteria are not met.
skin sensitisation	Skin Sens. 1. May cause an allergic skin reaction
(e) germ cell mutagenicity	Not classified. Based on the available data, the classification criteria are not met.
(f) carcinogenicity	Carc. 2. Suspected of causing cancer.
(g) reproductive toxicity	Repr. 1B. May damage fertility. May damage the unborn child.
(h) STOT-single exposure	STOT SE 3. May cause drowsiness or dizziness.
(i) STOT-repeated exposure	Not classified. Based on the available data, the classification criteria are not met.
(j) aspiration hazard	Asp. Tox. 1. May be fatal if swallowed and enters airways.

Information on likely routes of exposure

Inhalation	Inhalation of vapour may cause severe drowsiness and dizziness.
Skin contact	May cause an allergic skin reaction. Repeated exposure may cause skin dryness or cracking.
Ingestion	May be fatal if swallowed and enters airways.
Eye contact	Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

See above.

11.2 Information on other hazards

Endocrine disrupting properties.

This mixture contains 2,6-Di-tert-butyl-p-cresol that is identified as endocrine disruptor with human health effects.

SECTION 12: Ecological information

12.1. Toxicity

Aquatic chronic 2. Toxic to aquatic life with long lasting effects.

Data on aquatic toxicity for major components.

Component Name	Data
Hydrocarbons, C10 aromatics, <1% naphthalene	LC ₅₀ /96 h (Oncorhynchus mykiss): 2-5 mg/L (WAF)

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	NOELR/28 d (Freshwater fish) 0.441 mg/L (growth, estimated) EC ₅₀ /48 h (Daphnia magna): 3-10 mg/L NOELR/21 d (freshwater invertebrate): 0.771 mg/L (reproduction, estimated) EL ₅₀ /72 h (Selenastrum capricornutum): 1-3 mg/L (WAF, growth rate and biomass) NOELR/48 h (Tetrahymena pyriformis): 1.718 (estimated, growth inhibition)
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	LC ₅₀ /96h (Oncorhynchus mykiss): 0.3 mg/L EC ₅₀ /48 h (Daphnia magna): 0.4 mg/L ErC ₅₀ /72 h (Selenastrum capricornutum): 4.9 mg/L NOEC (Selenastrum capricornutum): 2.8 mg/L
Hydrocarbons, C10 aromatics, >1% naphthalene (Solvent naphta (petroleum), heavy arom.)	LC ₅₀ /96 h (Oncorhynchus mykiss): 2-5 mg/L NOELR/28 d (Freshwater fish) 0.487 mg/L (growth, estimated) EC ₅₀ /48 h (Daphnia magna): 3-10 mg/L NOELR/21 d (Daphnia magna): 0.40 mg/L (reproduction, estimated) EL ₅₀ /72 h (Pseudokirchneriella subcapitata): 3.8 – 7.9 mg/L (WAF, growth rate and biomass) NOELR/72 h (Pseudokirchneriella subcapitata): 0.22 mg/L (growth rate and biomass)
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	LC ₅₀ /96h (Oncorhynchus mykiss): 4.2 mg/L EC ₅₀ /48 h (Daphnia magna): 52 mg/L EC ₅₀ /72 h (Pseudokirchnerella subcapitata): 36 mg/L
p-methoxybenzaldehyde	EC ₅₀ /48 h (Daphnia magna): 82.8 mg/L EC ₅₀ (Freshwater algae): 61 mg/L NOEC (Freshwater algae): 0.65 mg/L
α,α'-propylenedinitrildi-o-cresol	LC ₅₀ /96 h (Leuciscus idus): 46 mg/L EC ₅₀ /48 h (Daphnia magna): 3.162 mg/L EC ₅₀ /72 h (Pseudokirchnerella subcapitata): 1.117 mg/L EC ₁₀ /72 h (Pseudokirchnerella subcapitata): 0.116 mg/L EC ₅₀ /3 h (microorganisms): 50 mg/L EC ₁₀ /3 h (microorganisms): 18 mg/L
2-Ethylhexan-1-ol	LC ₅₀ /96h (Leuciscus idus melanotus): 17.1 mg/L EC ₅₀ /48 h (Daphnia magna): 39 mg/L

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EC₅₀/72 h (Scenedesmus subspicatus): 16.6 mg/L
NOEC (Scenedesmus subspicatus): 5.3 mg/L

Naphthalene

LC₅₀/24 h (Fresh water fish): 0.9 mg/L
LC₅₀/ 96 h (Marine water fish): 2.4 mg/L
NOEC 40 d (Fresh water fish): 0.12 mg/L
NOEC/ 40 d (Marine water fish): 0.4 mg/L
LC₅₀/48 h (Daphnia magna): 2.16 mg/L
NOEC (Fresh water invertebrates): 0.6 mg/L
NOEC (Marine water invertebrates): 0.9 mg/L
EC₅₀ (Freshwater algae): 2.96 mg/L
EC₅₀ (Marine water algae): 0.410 mg/L
EC₅₀ (Microorganisms): 29 mg/L
NOEC (Microorganisms): 10 mg/L

4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one

LC₅₀/ 96 h (Oryzias latipes): 2.571 mg/L
EC₅₀/48 h (Daphnia magna): 1.6413 mg/L
NOEC (Pseudokirchnerella subcapitata): 0.656 mg/L

Hydrocarbons, C9, aromatics

LL₅₀/ 96 h (Oncorhynchus mykiss): 9.2 mg/L
EL₁₀/60 d (Oncorhynchus mykiss): > 0.34 mg/L
EL₅₀/48 h (Daphnia magna): 3.2 mg/L
EL₁₀/21 d (Daphnia magna): 0.59 mg/L

1,2,4-trimethylbenzene

LL₅₀/ 96 h (Pimephales promelas): 7.72 mg/L
EC₅₀/48 h (Daphnia magna): 3.6 mg/L
LC₅₀/96 h freshwater algae: 2.356 mg/L

p-tert-butylphenol

LC₅₀/96 h (rainbow trout): 5.1 mg/L
NOEC: 0.100 mg/L
EC₅₀/48 h (Daphnia magna): 3.9 - 6.7 mg/L
EC₅₀/21 d (Daphnia magna): 2.0 mg/L
ErC₅₀/72 h (Selenastrum capricornutum): 14 mg/L
NOEC (Selenastrum capricornutum): 0.32 mg/L

2,6-Di-tert-butyl-p-cresol

LC₅₀/96 h (Oryzias latipes): 1.1 mg/L
NOEC (Oryzias latipes): 0.053 mg/L
LC₅₀/48 h (Daphnia magna): 0.84 mg/L
EC₅₀/21 d (Daphnia magna): 3.9 - 6.7 mg/L
NOEC (Daphnia magna): 0.069 mg/L
EC₅₀/72 h (Pseudokirchneriella subcapitata): >0.24 mg/L

12.2. Persistence and degradability

No data available on the mixture. The following data are for the products components:

Component Name	Data
Hydrocarbons, C10 aromatics, <1% naphthalene	Inherently biodegradable.
Benzaldehyde	Readily biodegradable
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	Not readily biodegradable. 2,4,6-tri-tert-butyl phenol is persistent and very persistent, based on a weight of-evidence approach.
Ethyl butyrate	Inherently biodegradable
Hydrocarbons, C10 aromatics, >1% naphthalene (Solvent naphta (petroleum), heavy arom.)	Readily biodegradable
3-methylbutyl acetate	Readily biodegradable
3-Ethoxy-4-hydroxybenzaldehyde	Readily biodegradable
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	Inherently biodegradable
Ethyl acetate	Readily biodegradable
p-methoxybenzaldehyde	Readily biodegradable
α,α' -propylenedinitrildi-o-cresol	Readily biodegradable
Hydrocarbons, C10-C13, nalkanes, isoalkanes, cyclics, less than 2% aromatics	Readily biodegradable
2-Ethylhexan-1-ol	Readily biodegradable
Naphthalene	Readily biodegradable
Distillates (petroleum), hydrotreated heavy paraffinic	Inherently biodegradable
4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one	Readily biodegradable in water
Hexan-1-ol	Readily biodegradable
Hydrocarbons, C9, aromatics	Readily biodegradable.
1,2,4-trimethylbenzene	Biodegradable and would not be persistent in the environment.
p-tert-butylphenol	Readily biodegradable
2,6-Di-tert-butyl-p-cresol	Not readily biodegradable

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12.3. Bioaccumulative potential

No data available on the mixture. The following data are for the products components:

Component Name	Partition coefficient n-octanol /water (log Kow)	Bioconcentration factor (BCF)
Hydrocarbons, C10 aromatics, <1% naphthalene	≥ 3.17 - ≤ 4.18 at 20 °C	The substance is a hydrocarbon UVCB.
Benzaldehyde	1.4 at 25 °C	Low potential for bioaccumulation
Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol	4.9	2,6-di-tert-butylphenol: 434.9 2,4,6-tri-tert-butylphenol: 3282. 2,4,6-tri-tert-butylphenol has the potential to bioaccumulate
Ethyl butyrate	2.433 at 25 °C	≤ 12
Hydrocarbons, C10 aromatics, >1% naphthalene (Solvent naphta (petroleum), heavy arom.)	≥ 3.17 - ≤ 4.73 at 20 °C	The substance is a hydrocarbon UVCB.
3-methylbutyl acetate	2.7 at 35 °C	28.1 L/Kg ww
3-Ethoxy-4-hydroxybenzaldehyde	1.58 – 1.61 at 25°C.	Low potential of bioaccumulation
ethyl 3-methyl-3-phenyloxirane-2-carboxylate	2.8 at 25 °C	Low potential for bioaccumulation
Ethyl acetate	0.68 at 25 °C	Low potential for bioaccumulation
p-methoxybenzaldehyde	1.56 at 25 °C	Bioaccumulation not expected
α,α'-propylenedinitrildi-o-cresol	3.6 at 20 °C	Significant bioaccumulation in organisms is not to be expected.
Hydrocarbons, C10-C13, nalkanes, isoalkanes, cyclics, less than 2% aromatics	≥ 3.17 - ≤ 7.22 at 20 °C	The substance is a hydrocarbon UVCB.
2-Ethylhexan-1-ol	2.9 at 25 °C	38.06 L/Kg
Naphthalene	3.7 at 25 °C	168 (aquatic species)
Distillates (petroleum), hydrotreated heavy paraffinic	The substance is a hydrocarbon UVCB.	The substance is a hydrocarbon UVCB.
4-(2,6,6-Trimethylcyclohex-1-en-1-yl) but-3-en-2-one	1.903 at 27 °C	159
Hexan-1-ol	1.8	4.7 L/kg ww
Hydrocarbons, C9, aromatics	≥ 3.03 - ≤ 4.73 at 20 °C	The substance is a hydrocarbon UVCB.
1,2,4-trimethylbenzene	3.63	243
p-tert-butylphenol	3 at 23 °C	Unlikely to bioaccumulate in the food chain.
2,6-Di-tert-butyl-p-cresol	5.20	1277 moderately accumulated in organisms

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12.4. Mobility in soil

The product is insoluble in water. Volatile components of the product will distribute to air. Potential for adsorption to soil and sediment.

12.5. Results of PBT and vPvB assessment

This mixture contains 2,4,6- tri-tert-butylphenol that meets the PBT and vPvB and T criteria.

Contains > 3 - < 5% reaction mass of 2,6-di-tertbutylphenol and 2,4,6-tri-tert-butyl phenol which is possibly Persistent, Bioaccumulative and Toxic.

12.6. Endocrine disrupting properties

This mixture contains p-tert-butylphenol that is identified as endocrine disruptor with environmental effects.

12.7. Other adverse effects

No known other significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover or recycle if possible. The assignment of a waste code should be assessed based on the waste generated. Before disposing the product, solutions and any by-products, it should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Product and packaging to be disposed of as hazardous waste. Disposal should be in accordance with local, state, or national legislation. Do not landfill.

Empty containers retain product residue and can be hazardous. Dispose of uncleaned empty containers as hazardous waste in accordance with local, state, or national legislation.

Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor. Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14: Transport information

ADR/ADN/RID/IATO/ICAO/IMDG Code

14.1. UN number or ID number

1993

14.2. UN proper shipping name

FLAMMABLE LIQUID, N.O.S. (contains ethyl butyrate and ethyl acetate)

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14.3. Transport hazard class(es)

3

14.4. Packing group

III

14.5. Environmental hazards

ADR/ADN/RID/IATO/ICAO Yes
IMDG Code Marine pollutant

14.6. Special precautions for user

Read SDS and supplier instructions on correct use of the product.

ADR Tunnel Restriction Code (D/E)
ADR Transport Category 3
IMDG EmS: F-A, S-F

14.7. Maritime transport in bulk according to IMO instruments

The product is not intended to be transported in bulk.

SECTION 15: Regulatory information

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

UK Regulations

This product has been classified according to Regulation (EC) No 1272/2008 (CLP) amended by GB CLP (UK SI 2019/720 as amended).

This SDS has been prepared in accordance with REACH Regulation (EC) No 1907/2006, amended by UK REACH (UK SI 2019/758 as amended).

Health and Safety at Work Act

The Control of Major Accident Hazards (COMAH) Regulations.

The Control of Substances Hazardous to Health (COSHH) Regulations

Hazardous Waste (England and Wales) Regulations 2005

UK Waste (Circular Economy) (Amendment) Regulations 2020

The Waste (England and Wales) Regulations 2011

EU Regulations

This product has been classified according to Regulation (EC) No. 1272/2008 (CLP).

This SDS has been prepared in accordance with REACH Regulation (EC) No 1907/2006 as amended by Commission Regulation EU 2020/878.

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Candidate List of Substances of Very High Concern for Authorisation:

p-tert-butylphenol EC 202-436-9: Included in the Candidate List of substances of very high concern for Authorisation.

Reason for inclusion: Endocrine disrupting properties (Article 57(f) - environment)

Authorisations and/or restrictions on use:

Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol EC 907-745-9: Possible restriction.

Assessment of regulatory needs report for substances containing 4-tert-butylphenol
Restriction of 4-TBP as a substance, constituent or impurity in other substances, mixtures and articles up to a certain threshold is proposed to ensure that environmental emissions of 4-TBP are minimised. Ideally the entry should address both emissions from the production stage and emissions/exposure as a result of use. The entry would cover a wide scope – potentially all substances containing 4-TBP, including those that may be placed on the market in the future. This would help address the additivity effect of many low-level emissions.

Naphthalene EC 202-049-5: Intended to be restricted and entered in Annex XVII to REACH
REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures, and articles.

Community Rolling Action Plan (CoRAP)

Benzaldehyde EC 202-860-4: Not started

Reaction mass of 2,6-di-tert-butylphenol and 2,4,6-tri-tert-butyl phenol EC 907-745-9: concluded

Naphthalene EC 202-049-5: concluded

p-tert-butylphenol EC 202-436-9: concluded

2,6-Di-tert-butyl-p-cresol EC 204-881-4: Ongoing

Other EU regulations

Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants

No components listed.

Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer

No components listed.

Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals

No components listed.

Regulation (EU) N° 528/2012 Biocidal Products Regulation

No components listed.

Waste Framework Directive 2008/98/EC as amended.

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Chemical Agents Directive (CAD) Council Directive 98/24/EC as amended.

Occupational Exposure Limits – Indicative OELVs

15.2. Chemical safety assessment

A REACH chemical safety assessment has not been carried out.

SECTION 16: Other information

i) Indication of changes

Version:	4.0
Issue date:	14/08/2024
Previous Version:	3.0
Issue date of previous version:	14/03/2022

ii) Abbreviations and acronyms

ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
bw	Body weight
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
dw	Dry weight
EC number	European Inventory of Existing Commercial Chemical Substances or European List of Notified Chemical Substances number
EC ₅₀	Effective Concentration 50 %
EL ₅₀	Effective Loading rate 50%
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC ₅₀	Lethal Concentration 50%
LD ₅₀	Lethal Dose 50%
LL ₅₀	Lethal Loading rate 50 %
LOEL	Lowest Observed Effect Level
NOEL	No Observed Effect Level
NOELR	No Observed Effect Loading Rate
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
SCL	Specific Concentration Limit
vPvB	Very Persistent and Very Bioaccumulative
WAF	Water accommodated Fraction
WEL	Workplace Exposure Limit

iii) Key literature references and sources for data

Supplier's safety data sheet
Regulation (EC) No. 1272/2008.
Regulation (EC) No. 1907/2006
Mandatory Classification and Labelling List (GB MCL List)
ECHA REACH dossiers
HSE EH40/2005 4th Edition, 2020
GESTIS ILV (<https://limitvalue.ifa.dguv.de/>)
Endocrine Disruptor Lists (<https://edlists.org/>)
Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants.
Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer.
Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals.
Regulation (EU) N° 528/2012 Biocidal Products Regulation

iv) Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP] and GB CLP

Classification according to Regulation (EC) No. 1272/2008 and GB CLP	Classification procedure
Flam. Liq. 3; H226	Test – flash point
Asp. Tox. 1; H304	Calculation method
Skin Sen. 1; H317	Calculation method
Eye Dam. 1; H318	Calculation method
STOT SE 3; H336	Calculation method
Carc. 2; H351	Calculation method
Repr. 1B; H360FD	Calculation method
Aquatic Chronic 2 H411	Summation method

v) Relevant H-statements (number and full text)

Flam. Liq. 2; H225	Flammable liquids, category 2. Highly flammable liquid and vapour
Flam. Liq. 3; H226	Flammable liquids, category 3. Flammable liquid and vapour
Acute Tox. 4; H302	Acute oral toxicity, category 4. Harmful if swallowed
Asp. Tox. 1; H304	Aspiration hazard, category 1. May be fatal if swallowed and enters airways
Acute Tox. 4; H332	Acute inhalation toxicity, category 4. Harmful if inhaled
Skin Irrit. 2; H315	Skin corrosion/irritation, category 2. Causes skin irritation
Skin Sen. 1; H317	Skin sensitiser, category 1. May cause an allergic skin reaction
Eye Dam. 1; H318	Serious eye damage/eye irritation, category 1. Causes serious eye damage
Eye Irrit. 2; H319	Serious eye damage/eye irritation, category 2. Causes serious eye irritation
STOT SE 3; H335	Specific target organ toxicity — single exposure, category 3. May cause respiratory irritation

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STOT SE 3; H336	Specific target organ toxicity — single exposure, category 3. May cause drowsiness or dizziness
Carc. 1; H350	Carcinogenicity, category 1. May cause cancer
Carc. 2; H351	Carcinogenicity, category 2. Suspected of causing cancer
Repr. 1B; H360FD	Reproductive toxicity, category 1. May damage fertility. May damage the unborn child.
Repr. 2; H361f	Reproductive toxicity, category 2. Suspected of damaging fertility.
Aquatic Acute 1; H400	Hazardous to the aquatic environment, aquatic acute, category 1. Very toxic to aquatic life
Aquatic Chronic 1; H410	Hazardous to the aquatic environment, aquatic chronic, category 2. Very toxic to aquatic life with long lasting effects
Aquatic Chronic 2; H411	Hazardous to the aquatic environment, aquatic chronic, category 2. Toxic to aquatic life with long lasting effects
Aquatic Chronic 3; H412	Hazardous to the aquatic environment, aquatic chronic, category 3. Harmful to aquatic life with long lasting effects
EUH066	Repeated exposure may cause skin dryness or cracking.

vi) Training advice

Always read the label, safety data sheet and product information before use. Do not handle until all safety precautions have been read and understood.

Users should have received chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene. Provide adequate information, instruction, and training to operators.

vii) Further information

No additional information

End of safety data sheet.

DISCLAIMER

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