SAFETY DATA SHEET ACCORDING TO REGULATION (EC) 1907/2006

Product name: Trade Grade Roofing Topcoat

Creation date: 18.11.2021, Revision: 15.04.2024, version: 2.0

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

1.1 Product identifier

Product name

Trade Grade Roofing Topcoat

https://my.chemius.net/p/f5lMve/en/pd/en

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

Relevant identified uses

Topcoat Resin. Contact the manufacturer for any other applications.

Uses advised against

No information.

1.3 Details of the supplier of the safety data sheet

Supplier

GRP [UK] Ltd
Unit 19 Riverside Ind Est, Bridge Lane
Woolston, Warrington, WA1 4BA, Cheshire, United Kingdom
01925 812809
info@grpukltd.com

1.4 Emergency Telephone Number

Emergency

112

Supplier

01925 812809 Monday – Friday 8am – 4.30pm

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Flam. Liq. 3; H226 Flammable liquid and vapour.
Skin Irrit. 2; H315 Causes skin irritation.
Skin Sens. 1; H317 May cause an allergic skin reaction.
Eye Irrit. 2; H319 Causes serious eye irritation.
STOT SE 3; H335 May cause respiratory irritation.
Repr. 2; H361d Suspected of damaging the unborn child.
STOT RE 1; H372 Causes damage to organs through prolonged or repeated exposure (inhalation).
Aquatic Chronic 2; H411 Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Signal word: DANGER

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure (inhalation).
H411 Toxic to aquatic life with long lasting effects.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
P260 Do not breathe vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Contains:
styrene
phthalic anhydride
cobalt bis(2-ethylhexanoate)

2.3 Other hazards

PBT/vPvB
For PBT and vPvB assessment, see section 12.5.

Endocrine disrupting properties
No data.

Additional information
No information.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

For mixtures see 3.2.

3.2 Mixtures

Name	CAS EC Index Reach	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Concentration Limits	Notes for substances
styrene	100-42-5 202-851-5 601-026-00-0 01-2119457861-32	36-41	Flam. Liq. 3; H226 Asp. Tox. 1; H304 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Acute Tox. 4; H332 STOT SE 3; H335 Repr. 2; H361d STOT RE 1; H372 Aquatic Chronic 3; H412	/	/

titanium dioxide	13463-67-7 236-675-5 - 01-2119489379-17	1 - 5	/	/	/
Synthetic amorphuos silica, fumed, crystalline free	112945-52-5 231-545-4 - 01-2119379499-16	0.1 - < 2	/	/	/
carbon black	1333-86-4 215-609-9 - 01-2119384822-32	0.1 - < 1	/	/	/
phthalic anhydride	85-44-9 201-607-5 607-009-00-4 01-2119457017-41	0.1 - < 1	Acute Tox. 4; H302 Skin Irrit. 2; H315 Skin Sens. 1A; H317 Eye Dam. 1; H318 Resp. Sens. 1; H334 STOT SE 3; H335	/	/
propane-1,2-diol	57-55-6 200-338-0 - 01-2119456809-23	0.1 - < 1	/	/	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	- 919-446-0 - 01-2119458049-33	0.1 - < 1	Flam. Liq. 3; H226 Asp. Tox. 1; H304 STOT SE 3; H336 STOT RE 1; H372 Aquatic Chronic 2; H411 EUH066	/	P
cobalt bis(2-ethylhexanoate)	136-52-7 205-250-6 607-230-00-6 01-2119524678-29	0,1- < 0,3	Skin Sens. 1A; H317 Eye Irrit. 2; H319 Repr. 1B; H360FD Aquatic Acute 1; H400; M = 1 Aquatic Chronic 3; H412	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	13674-87-8 237-159-2 015-199-00-X 01-2119519227-41	0.1 - < 0.3	Carc. 2; H351 Aquatic Chronic 1; H410; M = 10	/	/

Notes for substances

P	The harmonised classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0,1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes

Person giving first aid should properly protect himself. See also section 8. Never give anything by mouth to an unconscious person. Place patient in recovery position and ensure airway patency. When in doubt or if feeling unwell seek medical assistance. Show the safety data sheet and label to the physician. No action shall be taken involving any personal risk or without suitable training.

Following inhalation

Remove patient to fresh air - move out of dangerous area. Keep at rest in a position comfortable for breathing. If symptoms develop and persist, seek medical attention. If breathing is irregular or respiratory arrest occurs provide artificial respiration. Seek medical help immediately.

Following skin contact

Take off all contaminated clothing. Wash affected skin areas immediately with plenty of water and soap. If symptoms

develop and persist, seek medical attention.

Following eye contact

Immediately flush eyes with running water, keeping eyelids apart. Remove contact lenses, if present and easy to do. If irritation persists, seek professional medical attention.

Following ingestion

Do not induce vomiting! Rinse mouth thoroughly with water. Consult a physician. Show the physician the safety data sheet or label.

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation

Danger of serious damage to health by prolonged exposure through inhalation. Can cause irritation of respiratory system. Coughing, sneezing, nasal discharge, labored breathing. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Following skin contact

Irritating to the skin. Itching, redness, pain. May cause sensitisation by skin contact (itching, redness, rashes).

Following eye contact

Causes severe eye irritation. Redness, tearing, pain.

Following ingestion

Irritates mucous membranes in the mouth, throat, esophagus and in gastrointestinal area. May cause nausea/vomiting and diarrhea. May cause abdominal discomfort.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Dry chemical powder.
Foam.
Carbon dioxide (CO_2).

Unsuitable extinguishing media

Full water jet. Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

In case of a fire toxic gases can be generated; do not inhale gases/smoke. In the event of fire the following can be generated: carbon monoxide (CO), carbon dioxide (CO_2).

5.3 Advice for firefighters

Protective actions

In case of fire or heating do not breathe fumes/vapours. Vapours are heavier than air and spread along floor. Vapours may form explosive mixtures with the air. Cool containers at risk with water spray. If possible remove containers from endangered area. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

Firefighters should wear appropriate protective clothing (BS EN 469) for firefighters (including helmets (BS EN 443), protective boots (BS EN 15090) and gloves (BS EN 659)) and self-contained breathing apparatus (SCBA) with a full face-piece (BS EN 137).

Additional information

Contaminated firefighting water and fire residues must be disposed of in accordance with the local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment

Use personal protective equipment (Section 8).

Precautionary measures

Prevent accumulation of vapours - vapours and air can form explosive mixtures. Ensure adequate ventilation. Keep away from sources of ignition and/or heat; No smoking! Take precautionary measures against static discharges. Prevent sparking.

Emergency procedures

Prevent access to unauthorised personnel. No action shall be taken involving any personal risk or without suitable training. Avoid contact with skin, eyes and clothing. Do not breathe vapour or mist.

For emergency responders

Use personal protective equipment.

6.2 Environmental precautions

Do not allow product to reach water/drains/sewage systems or permeable soil. If accidental large entry into water or ground occurs, inform responsible authorities.

6.3 Methods and material for containment and cleaning up

For containment

Stem the spill if this does not pose risks.

For cleaning up

Prevent release into the sewer, water, basements or confined areas. Absorb product (with inert material), collect it in special container and dispose it to a licensed hazardous-waste disposal contractor. Dispose in accordance with applicable regulations (see Section 13). Use spark-proof tools. Ventilate the premises.

Other information

See Section 12: ECOLOGICAL INFORMATION.

6.4 Reference to other sections

See also sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures

Measures to prevent fire

Ensure adequate ventilation. Vapours are heavier than air and spread along the floor. They form explosive mixtures with air. Keep away from sources of ignition - no smoking. Take precautionary measures against static discharges. Ensure proper grounding of the equipment. Use spark-proof tools.

Measures to prevent aerosol and dust generation

Use general or local exhaust ventilation to prevent inhaling vapours and aerosols.

Measures to protect the environment

Do not discharge into drains, surface water and soil. After use immediately close container tightly.

Other measures

No information.

Advice on general occupational hygiene

Handle in accordance with good industrial hygiene and safety procedures. Read and understand all safety instructions before use. Wear suitable protective equipment; see Section 8. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Avoid contact with skin, eyes and clothes. Do not breathe vapours/mist. Regular cleaning of equipment, work area and clothing is recommended.

Remove contaminated clothes and wash them before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Store in accordance with local regulations. Keep in a cool, dry and well ventilated place. Protect from open fire, heat and direct sunlight. Keep away from sources of ignition - no smoking. Keep away from food, drink and animal feeding stuffs. Keep away from strong oxidising agents. Keep away from peroxides. Keep away from reducing agents.

Packaging materials

The original container of producer. Metallic GRP containers. Unsuitable material: copper, copper alloys, bronze, zinc.

Requirements for storage rooms and vessels

Close opened containers after use. Put the containers upright to prevent from leaking. Do not store in unlabelled containers.

Storage temperature

≤ 30 °C

Storage class

No information.

Further information on storage conditions

No information.

7.3 Specific end use(s)

Recommendations

No information.

Industrial sector specific solutions

No information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure limit values

Name	mg/m³	ml/m³	Short-term value mg/m³	Short-term value ml/m³	Remark	Biological Tolerance Values
Cycloalkanes ≥C7	800	/	/	/	/	/
Normal and branched chain alkanes ≥C7	1200	/	/	/	/	/
Cobalt and Cobalt compounds (as Co)	0.1	/	/	/	Carc (cobalt dichloride and sulphate), Sen	/
Styrene (100-42-5)	430	100	1080	250	/	/
Carbon black (1333-86-4)	3.5	/	7	/	/	/
Phthalic anhydride (85-44-9)	4	/	12	/	Sen	/
Propane-1,2-diol particulates (57-55-6)	10	/	/	/	/	/
Propane-1,2-diol total vapour and particulates (57-55-6)	474	150	/	/	/	/
Titanium dioxide respirable (13463-67-7)	4	/	/	/	/	/
Titanium dioxide total inhalable (13463-67-7)	10	/	/	/	/	/

Information on monitoring procedures

BS EN 14042:2003 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. BS EN 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values. BS EN 482:2021 Workplace exposure. Procedures for the determination of the concentration of chemical agents. Basic performance requirements.

DNEL/DMEL values

For product

No information.

For components

Name	Type	Exposure route	exp. frequency	Remark	Value
titanium dioxide	Worker	inhalation	long term local effects	/	1.25 mg/m³
titanium dioxide	Consumer	inhalation	long term local effects	/	210 µg/m³
phthalic anhydride	Worker	inhalation	long term systemic effects	/	49.4 mg/m³
phthalic anhydride	Worker	dermal	long term systemic effects	/	14 mg/kg bw/day
phthalic anhydride	Consumer	inhalation	long term systemic effects	/	8.7 mg/m³
phthalic anhydride	Consumer	dermal	long term systemic effects	/	5 mg/kg bw/day
phthalic anhydride	Consumer	oral	long term systemic effects	/	5 mg/kg bw/day
phthalic anhydride	Consumer	oral	short term systemic effects	/	25 mg/kg bw/day
cobalt bis(2-ethylhexanoate)	Worker	inhalation	long term local effects	/	235.1 µg/m³
cobalt bis(2-ethylhexanoate)	Consumer	inhalation	long term local effects	/	37 µg/m³
cobalt bis(2-ethylhexanoate)	Consumer	oral	long term systemic effects	/	175 µg/kg bw/day
styrene	Consumer	oral	long term systemic effects	/	2.1 mg/kg bw/day
styrene	Consumer	dermal	long term systemic effects	/	343 mg/kg bw/day
styrene	Worker	dermal	long term systemic effects	/	406 mg/kg bw/day
styrene	Consumer	inhalation	long term systemic effects	/	10.2 mg/m³
styrene	Worker	inhalation	long term systemic effects	/	85 mg/m³
styrene	Consumer	inhalation	short term systemic effects	/	174.25 mg/m³
styrene	Worker	inhalation	short term systemic effects	/	289 mg/m³
styrene	Consumer	inhalation	short term local effects	/	182.75 mg/m³
styrene	Worker	inhalation	short term local effects	/	306 mg/m³
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Worker	inhalation	long term systemic effects	/	0.327 mg/m³
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Worker	dermal	long term systemic effects	/	0.047 mg/kg bw/day
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Consumer	inhalation	long term systemic effects	/	0.058 mg/m³
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Consumer	dermal	long term systemic effects	/	0.017 mg/kg bw/day
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Consumer	oral	long term systemic effects	/	0.017 mg/kg bw/day

hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Worker	dermal	long term	systemic	44 mg/kg
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Worker	inhalation	long term	systemic	330 mg/m³
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Consumer	oral	long term	repeated	26 mg/kg
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Consumer	dermal	long term systemic effects	/	26 mg/kg
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Consumer	inhalation	long term local effects	/	71 mg/m³

PNEC values

For product

No information.

For components

Name	Exposure route	Remark	Value
phthalic anhydride	fresh water	/	1 mg/L
phthalic anhydride	water, intermittent release	/	5.6 mg/L
phthalic anhydride	marine water	/	0.1 mg/L
phthalic anhydride	water treatment plant	/	10 mg/L
phthalic anhydride	fresh water sediment	dry weight	3.8 mg/kg
phthalic anhydride	marine water sediment	dry weight	0.38 mg/kg
phthalic anhydride	soil	dry weight	0.173 mg/kg
cobalt bis(2-ethylhexanoate)	fresh water	/	1.06 µg/L
cobalt bis(2-ethylhexanoate)	marine water	/	2.36 µg/L
cobalt bis(2-ethylhexanoate)	water treatment plant	/	0.37 mg/L
cobalt bis(2-ethylhexanoate)	fresh water sediment	dry weight	53.8 mg/kg
cobalt bis(2-ethylhexanoate)	marine water sediment	dry weight	69.8 mg/kg
cobalt bis(2-ethylhexanoate)	soil	dry weight	10.9 mg/kg
styrene	fresh water	/	0.028 mg/L
styrene	marine water	/	0.0028 mg/L
styrene	water, intermittent release	/	0.04 mg/L
styrene	fresh water sediment	/	0.614 mg/kg
styrene	marine water sediment	/	0.0614 mg/kg
styrene	water treatment plant	/	5 mg/L
styrene	soil	/	0.2 mg/kg dw
tris[2-chloro-1-chloromethyl)ethyl] phosphate	fresh water	/	0.2 µg/L
tris[2-chloro-1-chloromethyl)ethyl] phosphate	water, intermittent release	/	11 µg/L
tris[2-chloro-1-chloromethyl)ethyl] phosphate	marine water	/	0.02 µg/L
tris[2-chloro-1-chloromethyl)ethyl] phosphate	water treatment plant	/	100 mg/L
tris[2-chloro-1-chloromethyl)ethyl] phosphate	fresh water sediment	dry weight	0.83 mg/kg
tris[2-chloro-1-chloromethyl)ethyl] phosphate	marine water sediment	dry weight	0.166 mg/kg
tris[2-chloro-1-chloromethyl)ethyl] phosphate	soil	dry weight	0.33 mg/kg

tris[2-chloro-1-chloromethyl)ethyl] phosphate	secondary poisoning	food	3.3 mg/kg

8.2 Exposure controls

Appropriate engineering control

Substance/mixture related measures to prevent exposure during identified uses

Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Avoid contact with skin, eyes and clothes. Do not breathe vapours/aerosols.

Structural measures to prevent exposure

No information.

Organisational measures to prevent exposure

Remove all contaminated clothes immediately and wash them before reuse.

Technical measures to prevent exposure

Apply technical measures necessary in order not to exceed the occupational exposure limit. Provide good ventilation and local exhaust in areas with increased concentration. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment. Keep away from food, drink and animal feeding stuffs.

Personal protective equipment

Eye and face protection

Safety glasses with side protection (BS EN ISO 16321-1:2022). Do not use contact lenses.

Hand protection

Protective gloves (BS EN ISO 374). Observe the manufacturer's instructions regarding the use, storage, maintenance and replacement of gloves. In case of damage or at the first signs of wear and tear, change the gloves immediately.

Appropriate materials

Material	Thickness	Penetration Time	Remark
Neoprene	/	/	BS EN ISO 374
Nitrile	/	/	BS EN ISO 374
Viton (fluorinated rubber)	/	/	BS EN ISO 374
PVA	/	/	BS EN ISO 374

Skin protection

Protective antistatic clothing BS EN 1149 (1:2006, 2:1997 and 3:2004, 5:2018), protective antistatic shoes (BS EN ISO 20345:2022). Choose body protection according to the activity and possible exposure.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory protection. Wear suitable protective breathing mask (BS EN 136) with filter A2-P3 (BS EN 14387). APF 40 < 1 hour. APF 200 > 1 hour.

Thermal hazards

No information.

Environmental exposure controls

Substance/mixture related measures to prevent exposure

No information.

Instruction measures to prevent exposure

No information.

Organisational measures to prevent exposure

No information.

Technical measures to prevent exposure

Do not allow product to reach drains, sewage systems or ground water.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Important health, safety and environmental information

Physical state	liquid
Shape	No information.
Colour	gray
Odour	No information.
Odour threshold	0.15 ppm (styrene)
Melting/freezing point	-30 °C (styrene)
Boiling point or initial boiling point and boiling range	145 °C (styrene)
Flammability	No information.
Explosion limits (vol%)	0.9 — 1.1 % v/v (lower explosion limit) 6.1 — 6.8 % v/v (Upper explosion limit)
Flash point	31 °C (styrene)
Auto-ignition temperature	490 °C (styrene)
Decomposition temperature	No information.
pH	No information.
Viscosity (dynamic)	12000 — 24000 mPas at 23 °C
Viscosity (kinematic)	10909 — 21818 mm^2/s at 23 °C
Solubility (Water)	insoluble
Solubility (Organic solvent)	Soluble in most organic solvents
Partition coefficient n-octanol/water (log value)	3
Vapour pressure	10 hPa at 25 °C (styrene)
Density	1.1 — 1.4 g/cm^3 at 20 °C
Relative vapour density	3.6 (air=1 (styrene))
Particle characteristics	No information.

9.2 Other information

Information with regard to physical hazard classes

No information.

Other safety characteristics

No information.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Product may ignite and burn at temperatures exceeding the flash point.

10.2 Chemical stability

Product is stable under normal conditions of use, recommended handling and storage conditions.

10.3 Possibility of hazardous reactions

Vapours and air can form flammable or explosive mixtures. The risk of polymerization.

10.4 Conditions to avoid

Protect from heat, direct sunlight, open fire, sparks. Take precautionary measures against static discharges.

10.5 Incompatible materials

Strong oxidising agents.

Peroxide. Reducing agents.

10.6 Hazardous decomposition products

Under normal use conditions no hazardous decomposition products are expected. In case of fire/explosion vapours/gases that pose a health hazard are released. Carbon dioxide; Carbon monoxide.

SECTION 11: TOXICOLOGICAL INFORMATION

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

(a) Acute toxicity

For product

Exposure route	Type	Species	Time	Value	Method	Remark
inhalation (vapours)	ATE	/	/	> 20 mg/l	/	calculated value

For components

Name	Exposure route	Type	Species	Time	Value	Method	Remark
propane-1,2-diol	oral	LD_{50}	rat	/	22000 mg/kg bw	/	/
propane-1,2-diol	dermal	LD_{50}	rabbit	24 h	> 2000 mg/kg bw	/	/
propane-1,2-diol	inhalation (aerosol)	LC_{50}	rabbit	2 h	> 317042 mg/m^3	/	/
carbon black	oral	LD_{50}	rat	/	> 10000 mg/kg bw	OECD 401	/
Synthetic amorphuos silica, fumed, crystalline free	oral	LD_{50}	rat	/	> 5000 mg/kg bw	OECD 401	/
Synthetic amorphuos silica, fumed, crystalline free	dermal	LD_{50}	rabbit	/	> 5000 mg/kg	/	/
Synthetic amorphuos silica, fumed, crystalline free	inhalation	LC_{50}	rat	4 h	> 0.14 mg/l	OECD 403	/
titanium dioxide	oral	LD_{50}	rat	/	> 5000 mg/kg bw	OECD 425 EPA OPPTS 870.1100	/
titanium dioxide	inhalation	LC_{50}	rat	4 h	> 6.82 mg/l	/	/
phthalic anhydride	oral	LD_{50}	rat	/	1530 mg/kg bw	/	/
phthalic anhydride	dermal	LD_{50}	rabbit	/	> 3160 mg/kg bw	/	/
phthalic anhydride	inhalation	LC_{50}	rat	4 h	> 2.14 mg/l	OECD 403	/
cobalt bis(2-ethylhexanoate)	oral	LD_{50}	rat	/	3129 mg/kg bw	OECD 425	/
cobalt bis(2-ethylhexanoate)	dermal	LD_{50}	rat	/	> 2000 mg/kg bw	OECD 402	/
styrene	oral	LD_{50}	rat	/	5000 mg/kg	/	/
styrene	dermal	LD_{50}	rat	24 h	> 2000 mg/kg	OECD 402	/
styrene	inhalation (vapours)	LC_{50}	rat	4 h	11.8 mg/l	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	oral	LD_{50}	rat	/	> 2000 mg/kg bw	OECD 401	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	dermal	LD_{50}	rat	24 h	> 2000 mg/kg bw	OECD 402	/

tris[2-chloro-1-chloromethyl)ethyl] phosphate	inhalation	LC_{50}	rat	/	5.22 mg/l	OECD 403	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	oral	LD_{50}	rat	/	> 15000 mg/kg	Test(s) equivalent or similar to OECD Guideline 401	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	LC_{50}	rat	/	> 13.1 mg/l	Equivalent or similar to OECD Guideline 403.	/

Additional information

The product is not classified as acutely toxic. Inhalation of vapors can be harmful.

(b) Skin corrosion/irritation

For components

Name	Species	Time	result	Method	Remark
propane-1,2-diol	rabbit	/	Non-irritant.	OECD 404	In vivo
carbon black	rabbit	/	Non-irritant.	OECD 404; in vivo	/
Synthetic amorphuos silica, fumed, crystalline free	rabbit	/	Non-irritant.	OECD 404	/
titanium dioxide	rabbit	/	Non-irritant.	OECD 404, EPA OPPTS 870.2500	/
phthalic anhydride	rabbit	/	Irritating.	OECD 404	/
cobalt bis(2-ethylhexanoate)	/	/	Non corrosive.	OECD 431/EU Method B.40	in vitro
styrene	rabbit	/	Irritating.	in vivo	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	rabbit	/	Irritating.	OECD 404	In vivo
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	rabbit	/	Non-irritant.	OECD 404; in vivo	/

Additional information

Causes skin irritation.

(c) Serious eye damage/irritation

For components

Name	Exposure route	Species	Time	result	Method	Remark
propane-1,2-diol	/	rabbit	/	Non-irritant.	OECD 405	In vivo
carbon black	/	rabbit	/	Non-irritant.	OECD 405	In vivo
Synthetic amorphuos silica, fumed, crystalline free	/	rabbit	/	Non-irritant.	OECD 405	/
titanium dioxide	/	rabbit	/	Non-irritant.	OECD 405, EU Method B.5, EPA OPPTS 870.2400	/
phthalic anhydride	/	rabbit	/	Irritating.	Draize test	/
cobalt bis(2-ethylhexanoate)	/	/	/	moderately irritating	OECD 437, EU B.47	/
cobalt bis(2-ethylhexanoate)	/	rabbit	/	Irritating.	OECD 405	/
styrene	/	rabbit	/	Irritating.	in vivo	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	/	rabbit	/	Mild irritating.	OECD 405	in vivo

hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	/	rabbit	/	Non-irritant.	OECD 405; in vivo	/

Additional information

Causes serious eye irritation.

(d) Respiratory or skin sensitisation

For components

Name	Exposure route	Species	Time	result	Method	Remark
propane-1,2-diol	dermal	guinea pig	/	Negative.	OECD 406	/
propane-1,2-diol	dermal	mouse	/	Negative.	OECD 429	/
propane-1,2-diol	inhalation	/	/	Negative.	/	/
carbon black	dermal	guinea pig	/	Negative.	OECD 406	/
Synthetic amorphuos silica, fumed, crystalline free	dermal	/	/	Non sensitising.	/	/
titanium dioxide	dermal	guinea pig	/	Non sensitising.	OECD 406, EU Method B.6, EPA OPP 81-6	/
titanium dioxide	dermal	mouse	/	Non sensitising.	OECD 429	/
phthalic anhydride	dermal	guinea pig	/	Sensitizing.	OECD 406	/
phthalic anhydride	inhalation	guinea pig	/	Sensitizing.	/	/
cobalt bis(2-ethylhexanoate)	dermal	mouse	/	May cause sensitisation by skin contact.	OECD 429	/
styrene	dermal	/	/	Non sensitising.	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	dermal	/	/	Negative.	OECD 406	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	dermal	guinea pig	/	Non sensitising.	OECD 406	in vivo

Additional information

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

(e) (Germ cell) mutagenicity

For components

Name	Type	Species	Time	result	Method	Remark
propane-1,2-diol	in-vitro mutagenicity	Salmonella typhimurium	/	Negative.	/	S. typhimurium, other: TA 92, TA 94, TA 98, TA 100, TA 1535, TA 1537
propane-1,2-diol	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 473	/
propane-1,2-diol	in-vivo mutagenicity	rat	/	Negative.	/	Unscheduled DNA Synthesis (UDS)
carbon black	in-vitro mutagenicity	S.typhimurium TA 1535, TA 1537, TA 98, TA 100; Escherichia coli WP2 uvrA	/	Negative.	OECD 471	/
carbon black	in-vitro mutagenicity	mouse	/	Negative.	OECD 476	/
carbon black	in-vitro mutagenicity	hamster	/	Negative.	OECD 473	/
Synthetic amorphuos silica, fumed, crystalline free	in-vitro mutagenicity	Bacteria	/	Negative.	OECD 471	Gene Mutation

Synthetic amorphuos silica, fumed, crystalline free	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 476	/
Synthetic amorphuos silica, fumed, crystalline free	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 473; chromosome aberations test	/
Synthetic amorphuos silica, fumed, crystalline free	in-vivo mutagenicity	rat	/	Negative.	/	/
titanium dioxide	in-vitro mutagenicity	Salmonella typhimurium TA98, TA100, TA102, TA 1535, TA1537	/	Negative.	OECD 471	/
titanium dioxide	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 476	/
titanium dioxide	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 473	/
titanium dioxide	in-vivo mutagenicity	mouse	/	Negative.	/	/
phthalic anhydride	in-vitro mutagenicity	Bacteria	/	Negative.	OECD 471	S. typhimurium TA 1535, TA 1537, TA 98, TA100 and TA 102; Escherichia coli WP2 uvrA
phthalic anhydride	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	OECD 476	/
phthalic anhydride	in-vitro mutagenicity	hamster	/	Equivocal	OECD 473	Chromosome aberration assay
cobalt bis(2-ethylhexanoate)	in-vitro mutagenicity	S. typhimurium TA 1535, TA 1537, TA 98, TA100 and TA 102	/	Negative.	OECD 471	Read across
cobalt bis(2-ethylhexanoate)	in-vitro mutagenicity	mouse	/	Negative.	OECD 476	Read-across
cobalt bis(2-ethylhexanoate)	in-vivo mutagenicity	rat	/	Negative.	OECD 474, 475	Read-across
styrene	in-vitro mutagenicity	*Salmonella typhimurium*	/	Ambiguous.	OECD 471	/
styrene	in-vitro mutagenicity	hamster	/	Ambiguous.	OECD 476	/
styrene	in-vitro mutagenicity	/	/	chromosome aberration: positive	OECD 473, 479	/
styrene	in-vivo mutagenicity	mouse	/	Negative.	OECD 474, 486	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	in-vitro mutagenicity	S. typhimurium TA 1535, TA 1537, TA 98, TA100 and TA 102	/	Positive.	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	in-vitro mutagenicity	hamster	/	Negative.	OECD 473	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	/	mouse	/	Negative.	OECD 474	Unscheduled DNA Synthesis (UDS)
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	in-vitro mutagenicity	*Salmonella typhimurium*	/	Negative.	Similar to OECD 471	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	in-vitro mutagenicity	Cell: Mammalian-Animal	/	Negative.	Similar to OECD 473	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	in-vivo mutagenicity	mouse	/	Negative.	Similar to OECD 474, 475	/

(f) Carcinogenicity

For components

Name	Exposure route	Type	Species	Time	Value	result	Method	Remark
propane-1,2-diol	inhalation	NOAEC	rat (male/female)	18 months	> 350 mg/m3	Negative.	/	/
propane-1,2-diol	dermal	NOAEL	mouse (female)	/	0.02 ml	Negative	/	twice a week
propane-1,2-diol	oral	NOAEL	rat (male)	/	1700 mg/kg bw/day	Negative	/	/
propane-1,2-diol	oral	NOAEL	rat (male/female)	105 weeks	3040 mg/kg bw/day	Negative	/	/
propane-1,2-diol	oral	NOAEL	mouse (male/female)	/	2390 mg/kg bw/day	Negative	/	/
Synthetic amorphuos silica, fumed, crystalline free	oral	NOAEL	rat	/	1800 - 3200 mg/kg bw/day	Negative.	OECD 453	/
phthalic anhydride	oral	NOAEL	mouse	72 weeks	1785 - 3570 mg/kg bw/day	/	/	/
phthalic anhydride	oral	NOAEL	rat	105 weeks	1000 mg/kg bw/day	/	/	/
styrene	inhalation	NOAEC	rat	/	≥ 4.34 mg/l	Negative	OECD 453	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	oral	LOAEL	rat	24 months	5 mg/kg bw/day	positive	/	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	NOAEC	rat (female)	/	≥ 2000 mg/m3	Negative	Similar to OECD 453	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	NOAEC	rat (male)	/	138 mg/m3	Negative	Similar to OECD 453	/

(g) Reproductive toxicity

For components

Name	Reproductive toxicity type	Type	Species	Time	Value	result	Method	Remark
propane-1,2-diol	Reproductive toxicity	NOAEL	mouse (male/female)	/	10100 mg/kg bw/day	Negative.	RACB	oral
propane-1,2-diol	Developmental toxicity	NOAEL	mouse (male/female)	/	10100 mg/kg bw/day	Negative.	RACB	oral
propane-1,2-diol	Effects on fertility	NOAEL	mouse (male/female)	/	10100 mg/kg bw/day	Negative.	RACB	oral
propane-1,2-diol	Developmental toxicity	NOAEL	mouse	/	10400 mg/kg bw/day	Negative.	OECD 414	oral
propane-1,2-diol	Maternal toxicity	NOAEL	mouse	/	52 mg/kg bw/day	Negative.	OECD 414	oral
Synthetic amorphuos silica, fumed, crystalline free	Reproductive toxicity	NOAEL	rat	/	497 mg/kg bw/day	Negative.	OECD 415	oral
Synthetic amorphuos silica, fumed, crystalline free	Maternal toxicity	NOAEL	rat	/	1350 mg/kg bw/day	Negative.	OECD 414	oral
Synthetic amorphuos silica, fumed, crystalline free	Teratogenicity	NOAEL	rat	/	1350 mg/kg bw/day	Negative.	OECD 414	oral
titanium dioxide	Maternal toxicity + developmental toxicity	NOAEL	rat	20 days	1000 mg/kg bw/day	Negative.	OECD 414	/

phthalic anhydride	Reproductive toxicity	NOAEL	mouse	72 weeks	1785 - 3570 mg/kg bw/day	Negative.	/	oral
phthalic anhydride	Reproductive toxicity	NOAEL	rat	105 weeks	1000 mg/kg bw/day	Negative.	/	/
phthalic anhydride	Maternal toxicity	NOAEL	rat	/	1000 mg/kg bw/day	Positive.	/	Oral; Read across.
phthalic anhydride	Teratogenicity	NOAEL	rat	/	1700 mg/kg bw/day	Positive.	/	Oral; Read across.
cobalt bis(2-ethylhexanoate)	Reproductive toxicity	NOAEL/NOEL	rat	28 days	30 mg/kg bw/day	Positive.	OECD 422	oral, read across
styrene	Effects on fertility	NOAEL	rat	60 days	100 - 200 mg/kg bw/day	Positive.	/	inhalation
styrene	Maternal toxicity	NOAEC	rat	50 days	1.08 - 2.15 mg/L	Positive.	/	inhalation
styrene	Maternal toxicity	LOAEC	rat	15 days	1.28 mg/L	Positive.	OECD 414	Inhalation
styrene	Developmental toxicity	NOAEC	rat	15 days	≥ 2.56 mg/L	Negative.	OECD 414	inhalation
styrene	Effects on fertility	NOAEL	rat	60 days	200 - 400 mg/kg bw/day	Positive.	OECD 422	/
styrene	Reproductive toxicity	NOAEC (P/F1)	rat	/	0.64 mg/L	Negative.	OECD 416	/
styrene	Reproductive toxicity	LOAEC	rat	/	2.13 mg/L	Negative.	OECD 416	/
styrene	Reproductive toxicity	NOAEC (F2)	rat	/	0.21 mg/L	Negative.	OECD 416	/
styrene	Reproductive toxicity	LOAEC (F2)	rat	70 days	0.64 mg/L	Negative.	OECD 416	/
styrene	Maternal toxicity	NOAEC	rat	18 days	2.56 mg/L	Negative.	OECD 414	inhalation
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Reproductive toxicity	NOAEL (P)	rabbit	/	200 mg/kg bw/day	Negative.	/	oral
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Developmental toxicity	NOAEL	rat	/	100 mg/kg bw/day	Positive.	/	oral
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Maternal toxicity	NOAEL	rat	/	25 mg/kg bw/day	Positive.	/	oral
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Developmental toxicity	NOAEC (F1)	rat	/	1720 mg/m³	Negative.	Similar to OECD 421	Inhalation
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Maternal toxicity	NOAEL	rat	/	≥ 5220 mg/m³	Negative.	Similar to OECD 414	Inhalation
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	Developmental toxicity	NOAEC	rat	/	≥ 5220 mg/m³	Negative.	OECD 414	Inhalation

Summary of evaluation of the CMR properties

Suspected of damaging the unborn child. The chemical is not classified as mutagenic or carcinogenic.

(h) STOT-single exposure

For components

Name	Exposure route	Type	Species	Time	Exposure	organ	Value	result	Method	Remark
propane-1,2-diol	oral	NOAEL	rat (male/female)	102 weeks	/	/	1700 mg/kg bw/day	/	/	/
propane-1,2-diol	dermal	NOAEL	mouse (female)	10 weeks	/	/	0.02 ml	/	/	twice by week
propane-1,2-diol	inhalation	LOAEC	rat (male)	90 days	/	/	160 mg/m^3	/	/	/

Additional information

May cause respiratory irritation. Accidental ingestion may cause gastric disturbances (nausea, vomiting, stomach pain).

(i) STOT-repeated exposure

For product

Exposure route	Type	Species	Time	Exposure	organ	Value	result	Method	Remark
/	/	/	/	/	Central nervous system, hearing organs	/	Causes damage to organs through prolonged or repeated exposure.	/	/

For components

Name	Exposure route	Type	Species	Time	Exposure	organ	Value	result	Method	Remark
propane-1,2-diol	oral	NOAEL	rat	/	/	/	1700 mg/kg bw/day	/	/	/
propane-1,2-diol	inhalation	NOAEC	rat	/	/	/	1000 - 2200 mg/m3 air	/	/	/
propane-1,2-diol	dermal	NOAEL	mouse	/	/	/	0.02 ml	/	/	twice by week
carbon black	inhalation	NOAEC	rat	/	/	/	1 mg/m^3	/	OECD 413	high surface carbon black
carbon black	inhalation	NOAEC	rat	13 weeks	/	/	50 mg/m^3	/	OECD 413	5 days/week, low surface carbon black
carbon black	inhalation	LOAEC	rat	2 years	/	/	2.5 mg/m^3	/	OECD 452	/
Synthetic amorphuos silica, fumed, crystalline free	oral	NOEL	rat	90 days	/	/	4000 - 4500 mg/kg bw/day	/	OECD 408	/
Synthetic amorphuos silica, fumed, crystalline free	inhalation	NOEC	rat	90 days	/	/	≤ 1.3 mg/m^3	/	OECD 413	/
Synthetic amorphuos silica, fumed, crystalline free	dermal	NOAEL	rabbit	/	/	/	≥ 10000 mg/kg bw/day	/	/	/
titanium dioxide	oral	NOEL	rat	29 days	/	/	24000 mg/kg bw/day	/	OECD 407	/
titanium dioxide	oral	NOAEL	rat	/	/	/	> 1000 mg/kg/day	/	OECD 408	92 -93 days

phthalic anhydride	oral	NOAEL	rat	7 weeks	/	/	1250 mg/kg bw/day	/	/	/
phthalic anhydride	oral	LOAEL	rat	7 weeks	/	/	2500 mg/kg bw/day	/	/	/
phthalic anhydride	oral	NOAEL	rat	105 weeks	/	Heart, kidneys, liver	500 mg/kg bw/day	/	/	/
phthalic anhydride	oral	LOAEL	mouse	72 weeks	/	/	1717 - 2340 mg/kg bw/day	/	/	/
cobalt bis(2-ethylhexanoate)	oral	NOAEL	rat	90 days	/	/	3 mg/kg bw/day	/	OECD 408	read-across
styrene	inhalation	NOAEC	rat, mouse (male)	28 days	/	/	3.47 mg/L	/	OECD 412	/
styrene	inhalation	NOAEC	rat, mouse	28 days	/	/	2.13 mg/L	/	OECD 412	ototoxicity
styrene	inhalation	NOAEC	rat, mouse	28 days	/	/	0.181 - 0.688 mg/L	/	OECD 412	/
styrene	inhalation	NOAEC	rat	/	/	Nasal epithelium	0.85 mg/L	/	/	/
styrene	inhalation	NOAEC	rat	/	/	/	2.13 mg/L	/	/	/
styrene	inhalation	NOAEC	rat	/	/	/	0.85 mg/L	/	/	ototoxicity
styrene	inhalation	LOAEC	rat	/	/	/	3.14 mg/L	/	/	ototoxicity
styrene	oral	NOAEL	rat	/	/	/	1000 mg/kg bw/day	/	/	Read-across
styrene	oral	LOAEL	rat	/	/	/	2000 mg/kg bw/day	/	/	/
styrene	oral	NOAEL	mouse	/	/	/	150 mg/kg bw/day	/	/	/
styrene	oral	LOAEL	mouse	/	/	/	300 mg/kg bw/day	/	/	/
styrene	inhalation	LOAEC	rat	/	/	/	0.21 mg/m^3	/	OECD 453	local effects
tris[2-chloro-1-chloromethyl)ethyl] phosphate	oral	NOEL	hen	90 days	/	/	100 mg/kg bw/day	/	OECD 408 (Repeated Dose 90 Days Oral Toxicity Study in Rodents)	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	oral	LOAEL	rat (male)	24 months	/	/	5 mg/kg bw/day	/	/	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	oral	NOAEL	rat (female)	30 days	/	/	1056 mg/kg bw	/	Similar to OECD 408	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	oral	LOAEL	rat (male)	30 days	/	/	116 mg/kg bw	/	Similar to OECD 408	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	NOAEC	rat (female)	/	/	/	3950 mg/m^3	/	Similar to OECD 413	/

hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	LOAEC	rat (male)	/	/	general	1975 mg/m^3	/	Similar to OECD 413	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	inhalation	LOAEC	rat (female)	/	/	/	7400 mg/m^3	/	Similar to OECD 413	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	dermal	NOAEL	rat	/	/	/	≥ 495 mg/kg bw/day	/	Similar to OECD 411	systemic effects

Additional information

Causes damage to organs through prolonged or repeated exposure.

(j) Aspiration hazard

No information.

Additional information

Aspiration hazard: Not classified. Due to viscosity, this product does not present an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

No information.

Interactive effects

No information.

11.2 Information on other hazards

Endocrine disrupting properties

For product

No data.

Other information

No information.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute (short-term) toxicity

For components

Name	Type	Value	Exposure time	Species	organism	Method	Remark
propane-1,2-diol	EC_{50}	24200 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	/	/
propane-1,2-diol	EC_{50}	34100 mg/L	48 h	algae	*Pseudokirchneriella subcapitata*	/	/
propane-1,2-diol	EC_{50}	19000 mg/L	96 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
propane-1,2-diol	LC_{50}	18340 mg/L	48 h	crustacea	*Ceriodaphnia dubia*	/	/
propane-1,2-diol	LC_{50}	18800 mg/L	96 h	crustacea	*Americamysis bahia*	EPA 600/4-90/0-27	/
propane-1,2-diol	LC_{50}	40613 mg/L	96 h	fish	*Oncorhynchus mykiss*	/	/

propane-1,2-diol	EC_{50}	> 1000 mg/L	/	bacteria	Activated sludge	OECD 209	/
propane-1,2-diol	NOEC	> 20000 mg/L	18 h	bacteria	*Pseudomonas putida*	/	/
carbon black	LC50	1000 mg/L	96 h	fish	*Danio rerio*	OECD 203	/
carbon black	EC_{50}	> 5600 mg/L	24 h	crustacea	*Daphnia magna*	/	/
carbon black	EC_{50}	> 10000 mg/L	72 h	algae	*Desmodesmus subspicatus*	/	/
carbon black	NOEC	3200 mg/L	24 h	crustacea	*Daphnia magna*	OECD 202	/
carbon black	NOEC	> 10000 mg/L	72 h	algae	*Desmodesmus subspicatus*	OECD 201	/
Synthetic amorphuos silica, fumed, crystalline free	EL_{50}	≥ 1000 mg/L	48 h	crustacea	*Daphnia magna*	OECD 202	/
Synthetic amorphuos silica, fumed, crystalline free	LC_{50}	> 10000 mg/L	96 h	fish	*Brachydanio rerio*	OECD 203	/
titanium dioxide	LC_{50}	> 100 mg/L	48 h	crustacea	*Daphnia magna*	OECD 202	/
titanium dioxide	EC_{50}	> 1000 mg/L	3 h	bacteria	Activated sludge	OECD 209	/
titanium dioxide	NOEC	≥ 1000 mg/L	3 h	bacteria	Activated sludge	OECD 209	/
titanium dioxide	LC_{50}	> 100 mg/L	96 h	fish	*Carassius auratus*	OECD 203	/
titanium dioxide	NOEC	≥ 100 mg/L	96 h	fish	*Carassius auratus*	OECD 203	/
titanium dioxide	NOEC	≥ 100 mg/kg	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
titanium dioxide	EC_{50}	> 100 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
phthalic anhydride	EC_{50}	68 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
phthalic anhydride	NOEC	32 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
phthalic anhydride	EC_{50}	71 mg/L	48 h	crustacea	*Daphnia magna*	OECD 202	/
phthalic anhydride	LC_{50}	> 99 mg/L	96 h	fish	*Oryzias latipes*	OECD 203	/
phthalic anhydride	EC_{50}	> 1000 mg/L	3 h	bacteria	Activated sludge	ISO 8192	/
phthalic anhydride	EC_{50}	13 mg/L	16 h	bacteria	*Pseudomonas putida*	ISO 10712	/
phthalic anhydride	EC_{50}	731 mg/L	/	terrestrial plants	*Lactuca sativa*	/	/
cobalt bis(2-ethylhexanoate)	LC_{50}	1.512 mg/L	96 h	fish	*Oncorhynchus mykiss*	/	/
cobalt bis(2-ethylhexanoate)	NOEC	0.939 mg/L	96 h	fish	*Oncorhynchus mykiss*	/	/
cobalt bis(2-ethylhexanoate)	LOEC	1.577 mg/L	96 h	fish	*Oncorhynchus mykiss*	ASTM guideline (1996)	/
cobalt bis(2-ethylhexanoate)	EC_{50}	0.144 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	/	/
cobalt bis(2-ethylhexanoate)	NOEC	0.0322 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	/	/
cobalt bis(2-ethylhexanoate)	LOEC	0.0527 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
cobalt bis(2-ethylhexanoate)	EC_{10}	3.73 mg/L	30 min	activated sludge	/	/	/
cobalt bis(2-ethylhexanoate)	EC_{50}	120 mg/L	30 min	activated sludge	/	OECD 209	read-across
styrene	EC_{50}	4.9 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	EPA OTS 797.1050	/
styrene	EC_{50}	4.7 mg/L	48 h	crustacea	*Daphnia magna*	/	/

styrene	NOEC	1.9 mg/L	/	crustacea	*Daphnia magna*	OECD 202	/
styrene	LC_{50}	4.02 - 10 mg/L	96 h	fish	*Pimephales promelas*	OECD 203	/
styrene	EC_{50}	500 mg/L	30 min	bacteria	Activated sludge	OECD 209	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	EbC50	> 2.8 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	≥ 1.2 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	EU C.3 OECD 201	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	EC_{50}	3.8 mg/L	48 h	crustacea	*Daphnia magna*	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	1.6 mg/L	48 h	crustacea	*Daphnia magna*	OECD 202	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	LC_{50}	1.1 mg/L	96 h	fish	*Oncorhynchus mykiss*	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	0.56 mg/L	96 h	fish	*Oncorhynchus mykiss*	OECD 203	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	EC_{50}	> 10 g/l	3 h	activated sludge	/	OECD 209	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	EL_{50}	4.1 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	NOELR	0.76 mg/L	72 h	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	EL_{50}	10 - 22 mg/L	48 h	crustacea	*Daphnia magna*	OECD 202	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	LL_{50}	10 - 30 mg/L	96 h	fish	*Oncorhynchus mykiss*	OECD 203	/

Chronic (long-term) toxicity

For components

Name	Type	Value	Exposure time	Species	organism	Method	Remark
propane-1,2-diol	NOEC	15000 mg/l	14 days	algae	*Pseudokirchneriella subcapitata*	OECD 201	/
propane-1,2-diol	NOEC	13020 mg/l	7 days	crustaceans	*Ceriodaphnia sp.*	EPA 600/4-90/027	/
propane-1,2-diol	NOEC	11530 mg/l	7 days	fish	*Pimephales promelas*	EPA 600/4-89/001	/
phthalic anhydride	NOEC	16 - 42 mg/l	21 days	crustaceans	*Daphnia magna*	OECD 211	/
phthalic anhydride	LC_{50}	560 mg/l	7 days	fish	*Danio rerio*	OECD 210	/
phthalic anhydride	LOEC	32 mg/l	60 days	fish	*Danio rerio*	OECD 210	/
phthalic anhydride	NOEC	10 mg/l	60 days	fish	*Danio rerio*	OECD 210	/

cobalt bis(2-ethylhexanoate)	EC50	0.0901 mg/l	7 days	aquatic plants	*Lemna minor*	/	/
cobalt bis(2-ethylhexanoate)	NOEC	0.003 mg/l	7 days	aquatic plants	*Lemna minor*	/	/
cobalt bis(2-ethylhexanoate)	LOEC	0.0088 mg/l	7 days	aquatic plants	*Lemna minor*	OECD 221	/
cobalt bis(2-ethylhexanoate)	NOECr	0.0608 mg/l	21 days	crustacea	*Daphnia magna*	/	/
cobalt bis(2-ethylhexanoate)	LC_{50}	0.1213 mg/l	21 days	crustacea	*Daphnia magna*	/	/
cobalt bis(2-ethylhexanoate)	LOECR	0.0933 mg/l	21 days	crustacea	*Daphnia magna*	OECD 211	/
styrene	NOEC	1.01 mg/l	21 days	crustacea	*Daphnia magna*	OECD 203	/
styrene	LOEC	2.06 mg/l	21 days	crustacea	*Daphnia magna*	OECD 203	/
styrene	EC50	1.88 mg/l	21 days	crustacea	*Daphnia magna*	OECD 203	/
styrene	LC_{50}	120 mg/kg soil dw	14 days	invertebrate	*Eisenia fetida*	OECD 207	/
styrene	LOEC	65 mg/kg soil dw	/	invertebrate	*Eisenia fetida*	OECD 207	burrowing time and mean percent weight change
styrene	LOEC	180 mg/kg soil dw	/	invertebrate	*Eisenia fetida*	OECD 207	survival
styrene	NOEC	34 mg/kg soil dw	/	invertebrate	*Eisenia fetida*	OECD 207	mean percent weight change
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	1 mg/l	21 days	crustacea	*Daphnia magna*	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	> 128 mg/kg	28 days	Soil micro-organisms	/	OECD 216	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	19.3 mg/kg soil dw	19 days	Terrestrial plants	Sinapis alba	OECD 208	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	20 mg/kg bw	90 days	Birds	hen	/	body weight
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	20 mg/kg bw	90 days	Birds	hen	/	activity
tris[2-chloro-1-chloromethyl)ethyl] phosphate	NOEC	100 mg/kg bw	90 days	Birds	hen	/	locomotor impairment
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	EC50	0.328 mg/l	21 days	crustacea	*Daphnia magna*	OECD 211	/

12.2 Persistence and degradability

Abiotic degradation, physical- and photo-chemical elimination

No information.

Biodegradation

For components

Name	Type	Rate	Time	Evaluation	Method	Remark
propane-1,2-diol	biodegradation	81.7 %	28 days	readily biodegradable	OECD 301F	/
propane-1,2-diol	Biodegradation in water	95.8 %	64 days	readily biodegradable	OECD 306	/
phthalic anhydride	biodegradability	68 %	10 days	readily biodegradable	OECD 301 D	/

phthalic anhydride	biodegradability	74 %	30 days	readily biodegradable	OECD 301 D	/
cobalt bis(2-ethylhexanoate)	biodegradation	> 60 %	10 days	readily biodegradable	OECD 301 B	/
styrene	biodegradability	87 %	20 days	readily biodegradable	Similar to OECD 301D	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	biodegradation	0 %	28 days	not readily biodegradable	OECD 301B, EU Method C.5, OECD 301D, EU Method C.6	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	COD	0.85 g O_2/g	/	not readily biodegradable	/	/
hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	biodegradation	74.7 %	28 days	readily biodegradable	OECD 301F	Activated sludge, domestic, non-adapted

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)

For product

Value	Temperature °C	pH	Concentration	Method
3	/	/	/	/

For components

Name	Value	Temperature °C	pH	Concentration	Method
propane-1,2-diol	-1.07	/	/	/	/
phthalic anhydride	1.6	/	/	/	/
styrene	3	/	/	/	/

Bioconcentration factor (BCF)

For components

Name	Species	organism	Value	Duration	Evaluation	Method	Remark
propane-1,2-diol	/	/	0.09	/	/	/	Calculated value
phthalic anhydride	/	/	3.16 - 3.4	/	/	/	/
styrene	/	/	74	/	/	/	Calculated value
tris[2-chloro-1-chloromethyl)ethyl] phosphate	/	/	31 - 59	/	/	/	/

12.4 Mobility in soil

Known or predicted distribution to environmental compartments

No information.

Surface tension

No information.

Adsorption/Desorption

For components

Name	Type	Criterion	Value	Evaluation	Method	Remark
propane-1,2-diol	Soil	log KOC	0.46	/	/	/
phthalic anhydride	Soil	/	31	/	/	Koc
styrene	Soil	log KOC	2.55	/	/	/
tris[2-chloro-1-chloromethyl)ethyl] phosphate	Soil	/	1780	/	/	Koc

tris[2-chloro-1-chloromethyl)ethyl] phosphate	Soil	log KOC	3.25	/	/	/

12.5 Results of PBT and vPvB assessment

No evaluation.

12.6 Endocrine disrupting properties

For product

No data.

12.7 Other adverse effects

No information.

12.8 Additional information

For product

Toxic to aquatic life with long lasting effects. Do not allow to reach ground water, water courses or sewage system.

For components

propane-1,2-diol

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

carbon black

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

Synthetic amorphuos silica, fumed, crystalline free

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

titanium dioxide

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

phthalic anhydride

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

styrene

This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product / Packaging disposal

Waste chemical

Do not allow product to reach drains/sewage systems. Disposal must be made according to official regulations: deliver it to authorised collector/remover/transformer of hazardous waste. Dispose of in accordance with applicable waste disposal regulation. Waste codes should be assigned by the user based on the application for which the product was used.

Waste codes / waste designations according to LoW

No information.

Packaging

Deliver completely emptied containers to approved waste disposal authorities. Dispose of in accordance with applicable waste disposal regulation. Emptied container is suitable for recycling.

Waste codes / waste designations according to LoW

No information.

Waste treatment-relevant information

No information.

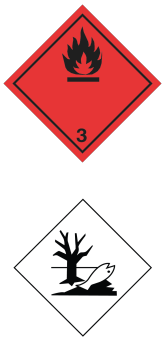
Sewage disposal-relevant information

No information.

Other disposal recommendations

No information.

SECTION 14: TRANSPORT INFORMATION

ADR/RID	IMDG	IATA	ADN
14.1 UN number or ID number			
UN 1866	UN 1866	UN 1866	UN 1866
14.2 UN proper shipping name			
RESIN SOLUTION	RESIN SOLUTION (tris[2-chloro-1-chloromethyl)ethyl] phosphate)	RESIN SOLUTION	RESIN SOLUTION
14.3 Transport hazard class(es)			
3	3	3	3
			
14.4 Packing group			
III	III	III	III
14.5 Environmental hazards			
YES	Marine pollutant	YES	YES
14.6 Special precautions for user			

Limited quantities 5 L Packing Instructions P001, IBC03, LP01, R001 Special packing provisions PP1 Transport category 3 Tunnel restriction code (D/E) Classification code F1	Limited quantities 5 L EmS F-E, S-E Flash point 31 °C	Limited Quantity, Packing Instructions (Ltd Qty, Pkg Inst) Y344 Limited Quantity, Maximum Net Quantity/Package (Ltd Qty, Max Net Qty/Pkg) 10 L Packing Instructions (Pkg Inst) 355 Maximum Net Quantity/Package (Max Net Qty/Pkg) 25 L Special provisions A3	Limited quantities 5 L
14.7 Maritime transport in bulk according to IMO instruments			
	Goods may not be carried in bulk in bulk containers, containers or vehicles.		

SECTION 15: REGULATORY INFORMATION

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

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (including last amendment Commission Regulation (EU) 2020/878)

- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

Information according 2004/42/EC about limitation of emissions of volatile organic compounds (VOC-guideline)
not applicable

Ingredients according to Regulation (EC) No 648/2004 on detergents
No information.

Special instructions
Observe the regulations on employment and protection against dangerous substances for young people, pregnant women and nursing mothers. Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Terms of restriction: 3, 40.

15.2 Chemical Safety Assessment

The chemical safety assessment has been made.

SECTION 16: OTHER INFORMATION

Indication of changes
1.2 Relevant identified uses of the substance or mixture and uses advised against 2.1 Classification of the substance or mixture 2.2 Label elements 2.3 Other hazards 3.2 Mixtures 4.1 Description of first aid measures 4.2 Most important symptoms and effects, both acute and delayed 5.3 Advice for firefighters 6.3 Methods and material for containment and cleaning up 7.1 Precautions for safe handling 7.2 Conditions for safe storage, including any incompatibilities 8.1 Control parameters 8.2 Exposure controls 9.1 Information on basic physical and chemical properties 9.2 Other information 10.5 Incompatible materials 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 12.1 Toxicity 12.2 Persistence and degradability 12.3 Bioaccumulative potential 12.4 Mobility in soil 12.5 Results of PBT and vPvB assessment 12.6 Endocrine disrupting properties 12.7 Other adverse effects 13.1 Waste treatment methods 14. Transport information 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Key literature references and sources for data
No information.

Abbreviations and acronyms
ATE - Acute Toxicity Estimate
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
CEN - European Committee for Standardisation
C&L - Classification and Labelling
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
CAS# - Chemical Abstracts Service number
CMR - Carcinogen, Mutagen, or Reproductive Toxicant
CSA - Chemical Safety Assessment
CSR - Chemical Safety Report
DMEL - Derived Minimal Effect Level
DNEL - Derived No Effect Level
DPD - Dangerous Preparations Directive 1999/45/EC
DSD - Dangerous Substances Directive 67/548/EEC
DU - Downstream User
EC - European Community
ECHA - European Chemicals Agency
EC-Number - EINECS and ELINCS Number (see also EINECS and ELINCS)
EEA - European Economic Area (EU + Iceland, Liechtenstein and Norway)
EEC - European Economic Community
EINECS - European Inventory of Existing Commercial Substances
ELINCS - European List of notified Chemical Substances
EN - European Standard
EQS - Environmental Quality Standard
EU - European Union
Euphrac - European Phrase Catalogue
EWC - European Waste Catalogue (replaced by LoW – see below)
GES - Generic Exposure Scenario
GHS - Globally Harmonized System
IATA - International Air Transport Association
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG - International Maritime Dangerous Goods
IMSBC - International Maritime Solid Bulk Cargoes
IT - Information Technology
IUCLID - International Uniform Chemical Information Database
IUPAC - International Union for Pure Applied Chemistry
JRC - Joint Research Centre
Kow - octanol-water partition coefficient
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
LE - Legal Entity
LoW - List of Wastes (see http://ec.europa.eu/environment/waste/framework/list.htm)
LR - Lead Registrant
M/I - Manufacturer / Importer
MS - Member States
MSDS - Material Safety Data Sheet
OC - Operational Conditions
OECD - Organization for Economic Co-operation and Development
OEL - Occupational Exposure Limit
OJ - Official Journal
OR - Only Representative
OSHA - European Agency for Safety and Health at work
PBT - Persistent, Bioaccumulative and Toxic substance
PEC - Predicted Effect Concentration
PNEC(s) - Predicted No Effect Concentration(s)
PPE - Personal Protection Equipment
(Q)SAR - Qualitative Structure Activity Relationship
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP - REACH Implementation Project
RMM - Risk Management Measure
SCBA - Self-Contained Breathing Apparatus
SDS - Safety data sheet
SIEF - Substance Information Exchange Forum
SME - Small and Medium sized Enterprises
STOT - Specific Target Organ Toxicity

(STOT) RE - Repeated Exposure
(STOT) SE - Single Exposure
SVHC - Substances of Very High Concern
UN - United Nations
vPvB - Very Persistent and Very Bioaccumulative

List of relevant H phrases

H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H360FD May damage fertility. May damage the unborn child.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure (inhalation).
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
EUH066 Repeated exposure may cause skin dryness or cracking.

Training advice

Ensure adequate training of the persons responsible for the use of chemicals.