



SAFETY DATA SHEET

DOW CHEMICAL COMPANY LIMITED

Safety Data Sheet according to REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

Product name: DOWSIL™ PR-1204 RTV Prime Coat Clear

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DOW CHEMICAL COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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

1.1 Product identifier

Product name: DOWSIL™ PR-1204 RTV Prime Coat Clear

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

Identified uses: Use at industrial sites: Use in coatings. Widespread use by professional workers: Use in coatings.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DOW CHEMICAL COMPANY LIMITED
5 OAKWATER AVENUE
CHEADLE ROYAL BUSINESS PARK
CHEADLE
SK8 3SR
UNITED KINGDOM

Customer Information Number:

+44 (0) 1663 746518

SDSQuestion@dow.com

Fax:

+44 (0) 1663 746605

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0031 115 694 982

Local Emergency Contact: 00 31 115 69 4982

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Flammable liquids - Category 2 - H225

Skin irritation - Category 2 - H315

Serious eye damage - Category 1 - H318

Reproductive toxicity - Category 2 - H361d
Specific target organ toxicity - single exposure - Category 3 - H336
Specific target organ toxicity - repeated exposure - Category 2 - H373
Aspiration hazard - Category 1 - H304
Long-term (chronic) aquatic hazard - Category 2 - H411
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Hazard pictograms



Signal word: **DANGER**

Hazard statements

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist or vapours.
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/ doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER and/or doctor.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.

Contains Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics; toluene; Tetra n-Butyl titanate; 1-Butanol

2.3 Other hazards

Static-accumulating flammable liquid.

This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, Mixture

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	UK REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008, as retained and amended in UK law
CASRN 68410-97-9 EC-No. 920-750-0 Index-No. —	—	>= 62.0 - <= 69.0 %	Hydrocarbons, C7- C9, n-alkanes, isoalkanes, cyclics	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 (Central nervous system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411 Acute toxicity estimate Acute oral toxicity: > 5,000 mg/kg Acute inhalation toxicity: > 5.61 mg/l, 4 Hour, vapour Acute dermal toxicity: > 2,000 mg/kg
CASRN 108-88-3 EC-No. 203-625-9 Index-No. 601-021-00-3	—	>= 15.0 - <= 23.0 %	toluene	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Repr. 2; H361d STOT SE 3; H336 (Central nervous system) STOT RE 2; H373 Asp. Tox. 1; H304 Aquatic Chronic 3; H412 Acute toxicity estimate Acute oral toxicity: 5,580 mg/kg Acute inhalation toxicity: 25.7 mg/l, 4 Hour, vapour 30 mg/l, 4 Hour, vapour Acute dermal toxicity: 12,267 mg/kg

CASRN 18765-38-3 EC-No. 242-560-0 Index-No. -	-	>= 3.0 - <= 4.0 %	Tetrakis(2-butoxyethyl) orthosilicate	Skin Irrit. 2; H315 STOT RE 2; H373 (Blood) Acute toxicity estimate Acute oral toxicity: > 2,000 mg/kg Acute dermal toxicity: > 2,000 mg/kg
CASRN 5593-70-4 EC-No. 227-006-8 Index-No. -	-	>= 3.0 - <= 4.0 %	Tetra n-Butyl titanate	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system) Acute toxicity estimate Acute oral toxicity: 4,220 mg/kg Acute inhalation toxicity: 11 mg/l, 4 Hour, dust/mist Acute dermal toxicity: 5,300 mg/kg
CASRN 71-36-3 EC-No. 200-751-6 Index-No. 603-004-00-6	-	>= 2.0 - <= 2.8 %	1-Butanol	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system) Acute toxicity estimate Acute oral toxicity: 2,292 mg/kg Acute inhalation toxicity: > 17.76 mg/l, 4 Hour, vapour Acute dermal toxicity: 3,430 mg/kg
CASRN 111-65-9 EC-No. 203-892-1 Index-No.	-	<= 1.1 %	n-octane	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 (Central nervous system) Asp. Tox. 1; H304

601-009-00-8				<p>Aquatic Acute 1; H400 Aquatic Chronic 1; H410</p> <p>M-Factor (Acute aquatic toxicity): 1</p> <p>Acute toxicity estimate Acute oral toxicity: > 5,000 mg/kg Acute inhalation toxicity: > 24.88 mg/l, 4 Hour, vapour Acute dermal toxicity: > 2,000 mg/kg</p>
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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

4.2 Most important symptoms and effects, both acute and delayed:

May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye damage. May cause drowsiness or dizziness. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. Alcohol consumed before or after exposure may increase adverse effects. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be

weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Dry sand.

Unsuitable extinguishing media: High volume water jet. Do not use direct water stream..

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides. Formaldehyde. Metal oxides.

Unusual Fire and Explosion Hazards: Flash back possible over considerable distance.. Exposure to combustion products may be a hazard to health.. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.. Flammable mixtures may exist within the vapor space of containers at room temperature.. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.. Vapours may form explosive mixtures with air..

5.3 Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Do not use a solid water stream as it may scatter and spread fire..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Ventilate the area. Use personal protective equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels. Prevent further leakage or spillage if safe to do so. Prevent spreading over

a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.

6.4 Reference to other sections:

See sections: 7, 8, 11, 12 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.

Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases. Unsuitable materials for containers: None known.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
toluene	ACGIH	TWA	20 ppm
Further information: Ototoxicant; A4: Not classifiable as a human carcinogen			

	GB EH40	TWA	191 mg/m3 50 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	STEL	384 mg/m3 100 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
1-Butanol	ACGIH	TWA	20 ppm
	GB EH40	STEL	154 mg/m3 50 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
n-octane	ACGIH	TWA	300 ppm
propan-1-ol	ACGIH	TWA	100 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	GB EH40	STEL	625 mg/m3 250 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	TWA	500 mg/m3 200 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
Ethylene glycol monobutyl ether	ACGIH	TWA	20 ppm
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans		
	GB EH40	TWA	123 mg/m3 25 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	STEL	246 mg/m3 50 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing: butanol, Propyl alcohol, Ethylene glycol monobutyl ether

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of	0.3 mg/g	ACGIH

				shift (As soon as possible after exposure ceases)	creatinine	BEI
Ethylene glycol monobutyl ether	111-76-2	butoxyacetic acid	Urine	After shift	240 Millimoles per mole creatinine	GB EH40 BAT
		Butoxyacetic acid (BAA)	Urine	End of shift (As soon as possible after exposure ceases)	200 mg/g creatinine	ACGIH BEI

Recommended monitoring procedures

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods. Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.

L'Institut National de Recherche et de Sécurité, (INRS), France.

Derived No Effect Level

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	1286.4 mg/m ³	n.a.	1066.67 mg/m ³	n.a.	1.9 mg/m ³	n.a.	837.5 mg/m ³

Consumers

Acute systemic effects	Acute local effects	Long-term systemic effects	Long-term local effects
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Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	1152 mg/m3	n.a.	n.a.	640 mg/m3	n.a.	0.41 mg/m3	n.a.	n.a.	178.57 mg/m3

toluene

Workers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	384 mg/m3	n.a.	n.a.	384 mg/m3	384 mg/kg bw/day	192 mg/m3	n.a.	192 mg/m3

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	226 mg/m3	n.a.	n.a.	226 mg/m3	226 mg/kg bw/day	56.5 mg/m3	8.13 mg/kg bw/day	n.a.	56.5 mg/m3

Tetrakis(2-butoxyethyl) orthosilicate

Workers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	25 mg/kg bw/day	44 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	12.5 mg/kg bw/day	10.9 mg/m3	12.5 mg/kg bw/day	n.a.	n.a.

Tetra n-Butyl titanate

Workers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	127 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	37.5 mg/kg bw/day	152 mg/m3	3.75 mg/kg bw/day	n.a.	n.a.

1-Butanol

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	310 mg/m3

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	3.125 mg/kg bw/day	55.37 mg/m3	1.562 mg/kg bw/day	n.a.	155 mg/m3

n-octane

Workers

<i>Acute systemic effects</i>		<i>Acute local effects</i>		<i>Long-term systemic effects</i>		<i>Long-term local effects</i>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	773 mg/kg bw/day	2035 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	699 mg/kg bw/day	608 mg/m3	699 mg/kg bw/day	n.a.	n.a.

Predicted No Effect Concentration

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

Compartment	PNEC
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toluene

Compartment	PNEC
Fresh water	0.074 mg/l
Intermittent use/release	0.0378 mg/l
Marine water	0.0074 mg/l
Sewage treatment plant	0.84 mg/l
Fresh water sediment	1.78 mg/kg dry weight (d.w.)
Marine sediment	0.178 mg/kg dry weight (d.w.)
Soil	0.313 mg/kg dry weight (d.w.)

Tetrakis(2-butoxyethyl) orthosilicate

Compartment	PNEC
Fresh water	10 mg/l

Marine water	1 mg/l
Sewage treatment plant	463 mg/l
Fresh water sediment	63.6 mg/kg dry weight (d.w.)
Marine sediment	6.4 mg/kg dry weight (d.w.)
Soil	0.570 mg/kg dry weight (d.w.)

Tetra n-Butyl titanate

Compartment	PNEC
Fresh water	0.08 mg/l
Marine water	0.008 mg/l
Intermittent use/release	2.25 mg/l
Soil	0.017 mg/kg dry weight (d.w.)
Marine sediment	0.007 mg/kg
Sewage treatment plant	65 mg/l
Fresh water sediment	0.069 mg/kg

1-Butanol

Compartment	PNEC
Fresh water	0.082 mg/l
Marine water	0.008 mg/l
Intermittent use/release	2.25 mg/l
Sewage treatment plant	2476 mg/l
Fresh water sediment	0.324 mg/kg dry weight (d.w.)
Marine sediment	0.032 mg/kg dry weight (d.w.)
Soil	0.017 mg/kg dry weight (d.w.)

n-octane

Compartment	PNEC
Fresh water	0.01 mg/l
Intermittent use/release	0.04 mg/l
Marine water	0.01 mg/l
Sewage treatment plant	0.16 mg/l
Fresh water sediment	4 mg/kg
Marine sediment	4 mg/kg
Soil	1.6 mg/kg

8.2 Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator (meeting standard EN 136) with organic vapor cartridge (meeting standard EN 14387).

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C, meeting standard EN 14387).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Color	Colorless to pale yellow
Odor	solvent-like
Odor Threshold	No data available

pH	Not applicable, substance/mixture is non-polar/aprotic
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	> 65 °C
Flash point	Tag closed cup 6 °C
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	0.77
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	1 mm ² /s at 25 °C
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Molecular weight	No data available
Particle size	Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

10.4 Conditions to avoid: Avoid static discharge. Heat, flames and sparks.

10.5 Incompatible materials: Avoid contact with oxidizing materials.

10.6 Hazardous decomposition products:

Decomposition products can include and are not limited to: Formaldehyde. Propyl alcohol. Ethylene glycol monobutyl ether. Butanol.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data are available.

11.1 Information on toxicological effects**Information on likely routes of exposure**

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:**Acute oral toxicity****Information for the Product:**

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, > 5,000 mg/kg Estimated.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

Single dose oral LD50 has not been determined.

For similar material(s): LD50, Rat, male and female, > 5,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

toluene

LD50, Rat, male, 5,580 mg/kg

Tetrakis(2-butoxyethyl) orthosilicate

LD50, Rat, > 2,000 mg/kg

Tetra n-Butyl titanate

LD50, Rat, male, 4,220 mg/kg

1-Butanol

LD50, Rat, female, 2,292 mg/kg OECD 401 or equivalent

n-octane

For similar material(s): LD50, Rat, male and female, > 5,000 mg/kg OECD 401 or equivalent

Acute dermal toxicity

Information for the Product:

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 5,000 mg/kg Estimated.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

The dermal LD50 has not been determined.

For similar material(s): LD50, Rabbit, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

toluene

LD50, Rabbit, 12,267 mg/kg

Tetrakis(2-butoxyethyl) orthosilicate

Information taken from reference works and the literature. LD50, Rat, > 2,000 mg/kg

Tetra n-Butyl titanate

LD50, Rabbit, 5,300 mg/kg

1-Butanol

LD50, Rabbit, male, 3,430 mg/kg OECD Test Guideline 402

n-octane

For similar material(s): LD50, Rabbit, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

Acute inhalation toxicity**Information for the Product:**

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene.

As product: The LC50 has not been determined.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

Brief exposure (minutes) is not likely to cause adverse effects. Excessive exposure may cause: lung effects Central nervous system depression

The LC50 has not been determined.

For similar material(s): LC50, Rat, 4 Hour, vapour, > 5.61 mg/l

toluene

LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Tetrakis(2-butoxyethyl) orthosilicate

Brief exposure (minutes) is not likely to cause adverse effects.

Tetra n-Butyl titanate

LC50, Rat, 4 Hour, dust/mist, 11 mg/l

1-Butanol

LC50, Rat, male and female, 4 Hour, vapour, > 17.76 mg/l OECD Test Guideline 403
No deaths occurred at this concentration.

n-octane

LC50, Rat, male and female, 4 Hour, vapour, > 24.88 mg/l OECD Test Guideline 403
No deaths occurred at this concentration.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on information for component(s):

Brief contact may cause severe skin irritation with pain and local redness.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

For similar material(s):

Brief contact may cause severe skin irritation with pain and local redness.

toluene

Brief contact may cause slight skin irritation with local redness.

Prolonged contact may cause moderate skin irritation with local redness.

May cause drying and flaking of the skin.

Tetrakis(2-butoxyethyl) orthosilicate

Brief contact may cause moderate skin irritation with local redness.

Tetra n-Butyl titanate

Prolonged contact may cause moderate skin irritation with local redness.

1-Butanol

Brief contact may cause skin irritation with local redness.

Prolonged contact may cause severe skin irritation with local redness and discomfort.

May cause drying and flaking of the skin.

n-octane

Prolonged contact may cause skin irritation with local redness.
Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
May cause pain.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Information for the Product:

Based on information for component(s):
May cause severe eye irritation.
May cause severe corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Effects may be slow to heal.
Vapor may cause lacrimation (tears).
May cause permanent impairment of vision.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

For similar material(s):
May cause slight temporary eye irritation.
Corneal injury is unlikely.

toluene

May cause slight eye irritation.
May cause slight temporary corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Vapor may cause lacrimation (tears).

Tetrakis(2-butoxyethyl) orthosilicate

Essentially nonirritating to eyes.

Tetra n-Butyl titanate

May cause moderate eye irritation.
May cause severe corneal injury.
May cause permanent impairment of vision.

1-Butanol

Based on product testing:
May cause severe eye irritation.
May cause severe corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Effects may be slow to heal.

n-octane

May cause pain disproportionate to the level of irritation to eye tissues.
May cause slight temporary eye irritation.
May cause slight temporary corneal injury.

Sensitization

Information for the Product:

For skin sensitization:

Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:

No relevant data found.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

toluene

For skin sensitization:

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Tetrakis(2-butoxyethyl) orthosilicate

For skin sensitization:

Did not cause allergic skin reactions when tested in guinea pigs.

No relevant data found.

Tetra n-Butyl titanate

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

1-Butanol

For skin sensitization:

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

n-octane

For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause drowsiness or dizziness.

Information for the Product:

Product test data not available.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Central nervous system

toluene

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Central nervous system

Tetrakis(2-butoxyethyl) orthosilicate

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Tetra n-Butyl titanate

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Nervous system

1-Butanol

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Nervous system

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

n-octane

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Central nervous system

Aspiration Hazard

May be fatal if swallowed and enters airways.

Information for the Product:

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

May be fatal if swallowed and enters airways.

toluene

May be fatal if swallowed and enters airways.

Tetrakis(2-butoxyethyl) orthosilicate

Based on physical properties, not likely to be an aspiration hazard.

Tetra n-Butyl titanate

Based on available information, aspiration hazard could not be determined.

1-Butanol

May be harmful if swallowed and enters airways.

n-octane

May be fatal if swallowed and enters airways.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

May cause damage to organs through prolonged or repeated exposure.

Information for the Product:

Product test data not available.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

For similar material(s):

Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

toluene

In animals, effects have been reported on the following organs:

Central nervous system.

Excessive exposure may cause neurologic signs and symptoms.

Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.

Intentional misuse by deliberately inhaling toluene may cause nervous system damage, hearing loss, liver and kidney effects and death.

Tetrakis(2-butoxyethyl) orthosilicate

In animals, effects have been reported on the following organs:

Blood.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

Butanol has been reported to cause eye effects (tearing, blurred vision, sensitivity to light, temporary corneal effects), hearing loss and vertigo.

n-octane

No relevant data found.

Carcinogenicity

Information for the Product:

Product test data not available.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

toluene

Did not cause cancer in laboratory animals.

Tetrakis(2-butoxyethyl) orthosilicate

No relevant data found.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

No relevant data found.

n-octane

No relevant data found.

Teratogenicity

Suspected of damaging the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

toluene

In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation.

Tetrakis(2-butoxyethyl) orthosilicate

Did not cause birth defects in laboratory animals.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

n-Butanol has caused birth defects and has been toxic to the fetus in laboratory animals at doses nontoxic to the mother. Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

n-octane

For similar material(s): Did not cause birth defects in laboratory animals.

Reproductive toxicity

Suspected of damaging the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

For similar material(s): In animal studies, did not interfere with reproduction.

toluene

In animal studies, did not interfere with reproduction.

Tetrakis(2-butoxyethyl) orthosilicate

In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

In animal studies, did not interfere with reproduction.

n-octane

For similar material(s): In animal studies, did not interfere with reproduction.

Mutagenicity

Information for the Product:

Product test data not available.

Information for components:**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

For similar material(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

toluene

The majority and most reliable of the many genetic toxicity studies on toluene, both in vitro and in animals, indicate that it is not genetically toxic.

Tetrakis(2-butoxyethyl) orthosilicate

No relevant data found.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

n-octane

For similar material(s): In vitro genetic toxicity studies were negative.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data are available.

12.1 Toxicity**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics****Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LL50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 10 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EL50, Daphnia magna (Water flea), static test, 48 Hour, 4.5 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

For similar material(s):

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 3.1 mg/l, OECD Test Guideline 201

For similar material(s):

NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 0.5 mg/l, OECD Test Guideline 201

Chronic toxicity to fish

For similar material(s):

NOELR, Pimephales promelas (fathead minnow), semi-static test, 14 d, mortality, 2.6 mg/l

Chronic toxicity to aquatic invertebrates

Based on data from similar materials

NOELR, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 2.6 mg/l

toluene**Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 5.8 mg/l, OECD Test Guideline 203

LC50, Oncorhynchus kisutch (coho salmon), flow-through test, 96 Hour, 5.5 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 24 Hour, 7 mg/l, OECD Test Guideline 202

LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3.78 mg/l

Acute toxicity to algae/aquatic plants

EC50, Chlorella sp, 3 Hour, 134 mg/l

NOEC, Skeletonema costatum (marine diatom), 72 Hour, Biomass, 10 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Nitrosomonas sp., Static, 24 Hour, Respiration rates., 84 mg/l

Chronic toxicity to fish

NOEC, Oncorhynchus kisutch (coho salmon), flow-through test, 40 d, growth, 1.39 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0.74 mg/l

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 2 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 28 d, mortality, 150 - 280 mg/kg

Tetrakis(2-butoxyethyl) orthosilicate**Acute toxicity to fish**

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Danio rerio (zebra fish), 96 Hour, > 201 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility

EC50, Daphnia sp. (water flea), 48 Hour, > 90 mg/l, EG 84/449

Acute toxicity to algae/aquatic plants

ErC50, Scenedesmus subspicatus, 72 Hour, > 161 mg/l, 88/302/EC

Tetra n-Butyl titanate**Acute toxicity to fish**

No relevant data found.

1-Butanol

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 1,376 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 1,328 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 225 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Pseudomonas putida, static test, 17 Hour, Growth inhibition, > 1,000 mg/l, DIN 38412

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 4.1 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

n-octane**Acute toxicity to fish**

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

LC50, Oryzias latipes (Orange-red killifish), 96 Hour, 0.42 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 0.3 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants

Pseudokirchneriella subcapitata, 72 Hour, Growth rate, >1.1 mg/l

Chronic toxicity to aquatic invertebrates

For similar material(s):

NOEC, Daphnia magna (Water flea), 21 d, 0.17 mg/l

12.2 Persistence and degradability**Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics**

Biodegradability: No relevant data found.

toluene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 100 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Tetrakis(2-butoxyethyl) orthosilicate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 83 %

Method: OECD Test Guideline 301B

Tetra n-Butyl titanate

Biodegradability: No relevant data found.

1-Butanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 98 %

Exposure time: 19 d

Method: OECD Test Guideline 301E or Equivalent

n-octane

Biodegradability: Material is expected to be readily biodegradable.

Biodegradation: > 60 %

Exposure time: 20 d

Method: Other guidelines

12.3 Bioaccumulative potential

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

toluene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.73 Measured

Bioconcentration factor (BCF): 90 Carp (*Leuciscus idus melanotus*) Measured

Tetrakis(2-butoxyethyl) orthosilicate

Bioaccumulation: No relevant data found.

Tetra n-Butyl titanate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 0.88 Estimated.

1-Butanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 1 at 25 °C OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

Bioconcentration factor (BCF): 3.16 Fish Estimated.

n-octane

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 5.15 Literature

Bioconcentration factor (BCF): 198.7 *Mytilus eduli* (saltwater mussels) 105 min

12.4 Mobility in soil

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

No relevant data found.

toluene

Partition coefficient (Koc): 205 Estimated.

Tetrakis(2-butoxyethyl) orthosilicate

No relevant data found.

Tetra n-Butyl titanate

No relevant data found.

1-Butanol

Partition coefficient (Koc): 2.4 Estimated.

n-octane

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 436.8 Estimated.

12.5 Results of PBT and vPvB assessment

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

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

toluene

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

Tetrakis(2-butoxyethyl) orthosilicate

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Tetra n-Butyl titanate

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

1-Butanol

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

n-octane

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

12.6 Other adverse effects

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

toluene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Tetrakis(2-butoxyethyl) orthosilicate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Tetra n-Butyl titanate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

1-Butanol

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

n-octane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC, provided it fulfils the criteria listed in Annex III of this directive. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

14.1 UN number or ID number	UN 1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S.(Distillates, petroleum, light distillate hydrotreating process, low-boiling, Toluene)
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	Distillates, petroleum, light distillate hydrotreating process, low-boiling, Octane
14.6 Special precautions for user	Special Provision 640D Hazard Identification Number: 33

Classification for INLAND waterways (ADNR/ADN):

Consult your Dow contact before transporting by inland waterway

Classification for SEA transport (IMO-IMDG):

14.1 UN number or ID number	UN 1993
14.2 UN proper shipping name	FLAMMABLE LIQUID, N.O.S.(Distillates, petroleum, light

	distillate hydrotreating process, low-boiling, Toluene)
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	Distillates, petroleum, light distillate hydrotreating process, low-boiling, Octane
14.6 Special precautions for user	EmS: F-E, S-E
14.7 Maritime transport in bulk according to IMO instruments	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1 UN number or ID number	UN 1993
14.2 UN proper shipping name	Flammable liquid, n.o.s.(Distillates, petroleum, light distillate hydrotreating process, low-boiling, Toluene)
14.3 Transport hazard class(es)	3
14.4 Packing group	II
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**UK REACH - UK Statutory Instruments 2019 No.758 as amended**

This product contains only components that have been either registered, notified for downstream user import (DUIN), are exempt from registration, are regarded as registered or are not subject to registration according to UK Statutory Instruments 2019 No.758 as amended (UK REACH)., Polymers are exempted from registration under REACH. All relevant starting materials and additives have been registered, notified for downstream user import (DUIN) or are exempt from registration according to UK Statutory Instruments 2019 No.758 as amended (UK REACH)., The aforementioned indications of the UK REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

UK REACH List of restrictions (Annex 17)

Conditions of restriction for the following entries should be considered:

Number on list 3
toluene (Number on list 48)

Control of Major Accident Hazards Regulations 2015 (COMAH)

Listed in Regulation: ENVIRONMENTAL HAZARDS

Number in Regulation: E2

200 t

500 t

Control of Major Accident Hazards Regulations 2015 (COMAH)

Listed in Regulation: FLAMMABLE LIQUIDS

Number in Regulation: P5c

5,000 t

50,000 t

Control of Major Accident Hazards Regulations 2015 (COMAH)

Listed in Regulation: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

Number in Regulation: 34

2,500 t

25,000 t

Further information

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

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.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Flam. Liq. - 2 - H225 - Based on product data or assessment
 Skin Irrit. - 2 - H315 - Calculation method
 Eye Dam. - 1 - H318 - Calculation method
 Repr. - 2 - H361d - Calculation method
 STOT SE - 3 - H336 - Calculation method
 STOT RE - 2 - H373 - Calculation method
 Asp. Tox. - 1 - H304 - Calculation method
 Aquatic Chronic - 2 - H411 - Calculation method

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT	UK. Biological monitoring guidance values
STEL	Short-term exposure limit (15-minute reference period)
TWA	8-hour, time-weighted average
Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half

maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

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