SAFETY DATA SHEET

DOW FRANCE S.A.S.

Safety Data Sheet according to Reg. (EU) 2020/878

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

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DOW FRANCE S.A.S. 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
UFI: 79NS-60TE-4005-8YHW

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Adhesive, binding agents

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
DOW FRANCE S.A.S.
23 AVENUE JULES RIMET
93210 LA PLAINE SAINT-DENIS
FRANCE

Customer Information Number: (31) 115 67 2626
SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 00 33 388 736 000
Local Emergency Contact: 00 33 388 736 000
ORFILA: + 33 (0)1 45 42 59 59

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

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.
P305 + P351 + P338 + P310	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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide 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.

Endocrine disrupting properties
Environment: The substance/mixture does not contain components considered to have

endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Human Health: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 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.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN **–** **EC-No.** 920-750-0 **Index-No.** –	01-2119473851-33	>= 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	01-2119471310-51	>= 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.** –	01-2120761533-55	>= 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.** –	01-2119967423-33	>= 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	01-2119484630-38	>= 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.** 601-009-00-8	_	<= 1,1 %	n-octane	Flam. Liq. 2; H225 Skin Irrit. 2; H315 STOT SE 3; H336 (Central nervous system) Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1

				M-Factor (Chronic aquatic toxicity): 1 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

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. If burn is present, treat as any thermal burn, after decontamination. 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. Carbon dioxide (CO2). Dry chemical. 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 isnecessary 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		
	2006/15/EC	TWA	192 mg/m3 50 ppm
	Further information: Indicative; skin: Identifies the possibility of significant uptake through the skin		
	2006/15/EC	STEL	384 mg/m3 100 ppm
	Further information: Indicative; skin: Identifies the possibility of significant uptake through the skin		

	FR VLE	VME	76,8 mg/m3 20 ppm
	Further information: R2: Reprotoxic category 2 - Possibly reprotoxic to humans; Skin: Risk of penetration through skin; REL binding: Regulatory binding exposure limits		
	FR VLE	VLCT (VLE)	384 mg/m3 100 ppm
	Further information: R2: Reprotoxic category 2 - Possibly reprotoxic to humans; Skin: Risk of penetration through skin; REL binding: Regulatory binding exposure limits		
1-Butanol	ACGIH	TWA	20 ppm
	FR VLE	VLCT (VLE)	150 mg/m3 50 ppm
	Further information: Indicative exposure limits: Indicative exposure limits		
n-octane	ACGIH	TWA	300 ppm
	FR VLE	VME	1 450 mg/m3 300 ppm
	Further information: Indicative exposure limits: Indicative exposure limits		
propan-1-ol	ACGIH	TWA	100 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	FR VLE	VME	500 mg/m3 200 ppm
	Further information: Indicative exposure limits: Indicative exposure limits		
Ethylene glycol monobutyl ether	ACGIH	TWA	20 ppm
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans		
	2000/39/EC	TWA	98 mg/m3 20 ppm
	Further information: skin: Identifies the possibility of significant uptake through the skin; Indicative		
	2000/39/EC	STEL	246 mg/m3 50 ppm
	Further information: skin: Identifies the possibility of significant uptake through the skin; Indicative		
	FR VLE	VLCT (VLE)	246 mg/m3 50 ppm
	Further information: Skin: Risk of penetration through skin; REL binding: Regulatory binding exposure limits		
	FR VLE	VME	49 mg/m3 10 ppm
	Further information: Skin: Risk of penetration through skin; REL binding: Regulatory binding exposure limits		

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 shift (As soon as	0.3 mg/g Creatinine	ACGIH BEI

				possible after exposure ceases)		
Ethylene glycol monobutyl ether	111-76-2	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 Securité, (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/m3	n.a.	1066,67 mg/m3	n.a.	1,9 mg/m3	n.a.	837,5 mg/m3

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
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

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

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
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

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

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
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

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	127 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
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

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
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

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3,125 mg/kg bw/day	n.a.	55 mg/m3

n-octane

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.	n.a.	n.a.	n.a.	773 mg/kg bw/day	2035 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
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**

toluene

Compartment	**PNEC**
Fresh water	0,074 - 0,68 mg/l
Intermittent use/release	0,0378 - 0,68 mg/l
Marine water	0,0074 - 0,68 mg/l
Sewage treatment plant	0,84 - 13,61 mg/l
Fresh water sediment	1,78 - 16,39 mg/kg dry weight (d.w.)
Marine sediment	0,178 - 16,39 mg/kg dry weight (d.w.)
Soil	0,313 - 2,89 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	0,178 mg/kg
Marine sediment	0,018 mg/kg
Soil	0,015 mg/kg

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 ºC, meeting standard EN 14387).

Environmental exposure controls
See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

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/freezing point	
Melting point/range	No data available
Freezing point	not determined
Boiling point or initial boiling point and boiling range	

Boiling point (760 mmHg)	> 65 °C
Flash point	**Tag closed cup** 6 °C
Flammability (solid, gas)	Not applicable
Flammability (liquids)	not determined
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
Solubility(ies)	
Water solubility	not determined
Partition coefficient: n-octanol/water	not determined
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	1 mm2/s at 25 °C
Particle characteristics	
Particle size	Not applicable

9.2 Other information	
Molecular weight	No data available
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Self-heating substances	The substance or mixture is not classified as self heating.
Metal corrosion rate	Not corrosive to metals
Evaporation Rate (Butyl Acetate = 1)	No data available

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 is available.

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

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
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, 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
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. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

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

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 moderate 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).

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 skin sensitization:
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

toluene
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.

11.2 Information on other hazards

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Information for components:

Hydrocarbons, C7-C9, n-alkanes, isoalkanes, cyclics
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

toluene
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Tetrakis(2-butoxyethyl) orthosilicate
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Tetra n-Butyl titanate
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

1-Butanol

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

n-octane
The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is 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

Acute toxicity to aquatic invertebrates
LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3,78 mg/l

Acute toxicity to algae/aquatic plants
EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12,5 mg/l, OECD Test Guideline 201

Chronic toxicity to fish
NOEC, Fish, flow-through test, 40 d, growth, 1,4 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0,74 mg/l

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 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 subcapita, 72 Hour, Growth rate, >1,1 mg/l

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
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): 13,2 - 90 Fish 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): 37 - 178 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 Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

toluene

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Tetrakis(2-butoxyethyl) orthosilicate

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Tetra n-Butyl titanate

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

1-Butanol

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

n-octane

The substance is not considered to have endocrine disrupting properties according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

12.7 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. 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
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

REACh Regulation (EC) No 1907/2006
This product contains only components that have been either registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express 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.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3 toluene (Number on list 48)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Listed in Regulation: ENVIRONMENTAL HAZARDS
Number in Regulation: E2
200 t
500 t
Listed in Regulation: FLAMMABLE LIQUIDS
Number in Regulation: P5c
5 000 t
50 000 t
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

Installations classified for the protection of the environment (Environment Code R511-9)
4331: Flammable liquids category 2 or 3 excluding rubric 4330
4511: Hazardous to the aquatic environment category chronic 2.
4734: Petroleum products and alternative fuels: gasolines and naphthas, kerosenes (including jet fuels), gas oils (including diesel fuels, home heating oils and gas oil blending streams), heavy fuel oils, alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards.

Occupational Illnesses (R-461-3, France):	Table: 4 bis	(Gastro intestinal illness caused by benzene, toluene, xylene and all products in which they are contained.)
	Table: 84	(Health effects caused by professional use

of liquid organic solvents (indicated in the table).)

Further information
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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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Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2006/15/EC	Europe. Indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
FR VLE	France. Occupational Exposure Limits (INRS)
STEL	Short term exposure limit
TWA	8-hour, time-weighted average
VLCT (VLE)	Short Term Exposure Limit
VME	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 - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - AmericanSociety 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 associatedwith 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; TECI - 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.

DOW FRANCE S.A.S. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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