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

1.1 Product identification:

Product name:	SILASTIC™ RTV-3081-VF harder
UFI:	TVPM-R0D0-S00T-5X6M

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

Use:	Use in industrial environments: Use in rubber production and processing.
Uses advised against:	None known.

1.3 Details of the supplier of the safety data sheet:

Responsible distributor :	ASSYST bvba / A.S.O.W. bvba Hellegatstraat 13a 2590 Berlaar Belgium Tel: +32 495 50 61 14 / +32 496 83 70 27 Website: www.assyst.org / www.artsuppliesonweb.com Email: ao@assyst.org / vera.opsommer@assyst.org

1.4 Emergency phone number:

For Belgium:	Call the **Poison Control Centre (070 245 245 - free)**, if not available: **02 264 96 30** (normal rate) or your doctor. In life-threatening situations, always call the European emergency number **112**.
NHS 24 Direct	For help from a GP, visit your GP surgery's website, use an online service to contact your GP, or call the surgery. **For urgent medical help**, use the NHS 111 online service, or **call 111** if you are unable to get help online. **For life-threatening emergencies, call 999** for an ambulance. There is more information about getting medical help on the NHS website.

SECTION 2: Identification of hazards

2.1 Classification of the substance or mixture:

Classification according to directive (EC) No 1272/2008 and its amendments.

The product is classified according to current legislation.

Classification in accordance with Regulation (EC) No 1272/2008 as amended.

Health hazards

Flammable liquids - Category 3 - H226
Skin corrosion/irritation - Category 2 - H315
Skin sensitisation - Category 1 - H317
(Chronic) Aquatic long-term hazard - Category 2 - H411
For the full text of H phrases referred to in this section, see section 16.

2.2 Labelling elements:

Labelling according to regulation (EC) No 1272/2008 [CLP/GHS]:

Hazard pictograms:

Signal word Warning.

Hazard-determining components for labelling:

- ✓ Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane;

Hazard statements:

H226 Flammable liquid and vapour.
H315 Causes skin irritation.

H317 May cause an allergic skin reaction.
H411 Toxic to aquatic organisms with long-lasting effects.
Precautions
Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke.
P261 Avoid inhalation of dust/fume/gas/mist/vapour/spray.
P273 Avoid discharge into the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P370 + P378 In case of fire: extinguish with dry sand or alcohol-resistant foam.
P391 Clean up any leaks/spills.
2.3 Other hazards:
Flammable liquid that builds up static charge.
This product does not contain any substances assessed as PBT or vPvB at concentrations of 0.1% or higher.
Endocrine-disrupting properties
Environment:
The substance/mixture does not contain any components believed 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 level 0.1% or higher.
Human health:
The substance/mixture does not contain any components believed 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 level 0.1% or higher.

SECTION 3: Composition and information on ingredients

Chemical description:
Organotin compound
3.2 Mixtures:
Description:
This product is a blend.

CAS No. EC No. Index no.	REACH registration number	Concentration	Component	Classification : REGULATION (EC) No 1272/2008
CAS No. 11099-06-2 EC No. 234-324-0 Index no. -	-	>= 18,0 - <= 26,0 %	Ethyl polysilicate	Aquatic Chronic 2; H411 Acute toxicity estimates Acute oral toxicity: > 7 500 mg/kg Acute toxicity at inhalation: > 7,35 mg/l, 4 h, dust/mist Acute dermal toxicity: 4 290 mg/kg
CAS No. 68928-76-7 EC No. 273-028-6 Index no. -	01-2120770324-57	>= 12,0 - <= 17,0 %	Bis [(2-ethyl-2,5-dimethylhexanoyl)oxy] (dimethyl)stannane	Acute Tox. 4; H302 Skin Irrit. 2; H315 Skin Sens. 1A; H317 Aquatic Chronic 3; H412 Acute toxicity estimates Acute oral toxicity: 892 mg/kg Acute dermal toxicity: > 2 000 mg/kg
CAS No. 78-10-4 EC No. 201-083-8	01-2119496195-28	>= 2,2 - <= 4,2 %	Tetraethyl silicate	Flam. Liq. 3; H226 Acute Tox. 4; H332 Eye Irrit. 2; H319 STOT SE 3; H335 (Respiratory system)

Index no. 014-005-00-0				Acute toxicity estimates Acute oral toxicity: > 2 500 mg/kg Acute toxicity by inhalation: > 16.8 mg/l, 4 h, dust/mist 10 mg/l, 4 h, dust/mist 17 mg/l, 4 h, vapours Acute dermal toxicity: 5 878 mg/kg
CAS No. 67-56-1 EC No. 200-659-6 Index no. 603-001-00-X	-	>= 0,15 - <= 0,26 %	Methanol	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370 (Eyes, Central nervous system) Specific concentration limits STOT SE 1; H370 >= 10 % STOT SE 2; H371 3 - < 10 % Acute toxicity estimates Acute oral toxicity: > 5 000 mg/kg 340 mg/kg Acute toxicity by inhalation: 3 mg/l, 4 h, vapours Acute dermal toxicity: 15 800 mg/kg
CAS No. 1112-39-6 EC No. 214-189-4 Index no. -	-	>= 0,08 - <= 0,14 %	Dimethyldimethoxysilane	Flam. Liq. 2; H225 Repr. 2; H360F Acute toxicity estimates Acute oral toxicity: > 2 000 - 5 000 mg/kg Acute toxicity by inhalation: > 4,7 mg/l, 4 h, vapours
Substances with workplace exposure limits				
CASRN 1185-55-3 EC No. 214-685-0 Index no. -	01-2119517436-40	>= 8,0 - <= 11,0 %	Methyltrimethoxysilane	Flam. Liq. 2; H225 Acute toxicity estimates Acute oral toxicity: 11 685 mg/kg Acute toxicity by inhalation: > 7605 ppm, 6 h, vapours Acute dermal toxicity: > 9 500 mg/kg

For the full text of H phrases referred to in this section, see section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures:

General advice:

First aiders should take care of self-protection and use the recommended protective clothing (chemical-resistant gloves, splash protection).

If there is an exposure risk, refer to section 8 for specific personal protective equipment.

Inhalation:

Bring the person into fresh air and let them breathe comfortably.

Breathe artificially if not breathing; if mouth-to-mouth, use protection (pocket face mask, etc.).

Oxygen should be given by qualified personnel if breathing is difficult.

Contact a doctor or transport it to a medical facility.
Skin touch:
Remove the material from the skin immediately by washing with soap and plenty of water.
Remove contaminated clothing and shoes during washing.
Consult a doctor if irritation or rash occurs.
Wash clothes for reuse.
Remove all accessories that cannot be disinfected, including leather goods such as shoes, belts and watch straps.
An appropriate emergency safety shower facility should be available at the workplace.
Eye contact:
Rinse eyes thoroughly with water for several minutes.
Remove contact lenses after the first 1-2 minutes and continue rinsing for several minutes.
Consult a doctor if adverse reactions occur, preferably an ophthalmologist An appropriate emergency eye wash facility should be available in the work area.
Ingestion:
In case of ingestion, consult a doctor.
Do not induce vomiting unless ordered by medical staff.
4.2 Main acute and delayed symptoms and effects:
Causes skin irritation.
May cause allergic skin reaction.
4.3 Indication of immediate medical attention and special treatment required:
Notes for the doctor:
No specific antidote.
Treatment of exposure should take into account the patient's symptoms and clinical condition.
Skin contact may worsen an existing dermatitis.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media:
Suitable extinguishing agents:
Alcohol-resistant foam.
Carbon dioxide (CO_2).
Drying powder.
Dry sand.
Extinguishing agents not suitable from a safety point of view:
Strong water jet.
Do not use a direct water jet.
5.2 Special hazards arising from the substance or mixture:
Hazardous combustion products:
Carbon oxides. Silicon oxide. Nitrogen oxides (NO_x). Oxides of phosphorus. Metal oxides.
Unusual fire and explosion hazards:
Fire recoil possible over a considerable distance.
Exposure to combination products can be hazardous to health.
At temperatures above the flash point, flammable vapour concentrations may accumulate; see Sec. 9.
Combustible mixtures may occur in the vapour space of the container at room temperature.
Closed vessels can rupture due to pressure build-up when exposed to fire or extreme heat.
Vapours can form explosive mixtures with air.
5.3 Advice for firefighters:
Fire-fighting measures:
Use water spray to cool unopened containers.
Evacuate.
Collect contaminated firefighting water separately.
It should not drain to the sewerage system.

Combustion residues and contaminated fire fighting water must be disposed of according to local regulations.
If possible, prevent the run-off of extinguishing water.
Extinguishing water, which has run off, can cause damage to the environment.
Use water spray to cool vessels exposed to fire and the area involved in the fire until the fire is extinguished and the danger of re-ignition has passed.
Do not use a steady stream of water as it may splash apart and spread the fire.
Use extinguishing agents suitable for the local conditions and environment.
Remove undamaged holder from fire area if it is safe to do so.
Special protective equipment for firefighters:
In case of fire, wear a compressed air mask.
Use personal protective equipment.

SECTION 6: Measures in case of accidental release of the substance or mixture

6.1 Personal precautions, protective equipment and emergency procedures:

Remove all ignition sources.
Use personal protective equipment.
Avoid all ignition sources in the vicinity of spills or released vapours to prevent fire or explosion.
Ground all containers and processing equipment.
Explosion hazard from vapours, keep away from drains.
Follow the advice on working safely with the substance and recommendations on personal protective equipment.

6.2 Environmental precautions:

Do not release the product into the aquatic environment above the legal limits.
Avoid further leaks and spills if it is safe to do so.
Prevent spreading over a large area (e.g. by containment or oil baffles).
Collect and dispose of contaminated cleaning water.
In case of significant leaks that cannot be contained, the local government should be notified.

6.3 Methods and materials for containment and cleaning:

Only use non-sparking tools.
Absorb in inert absorbent material.
Precipitate gases/fumes/mists using a water spray jet.
Wipe with absorbent material or pick it up and dispose of in a lidded bin.
Local or national regulations may apply both to leaks or disposal of the material, and to the materials used in cleaning operations.
You must determine which regulations apply.
To prevent material from spreading, proper barricades or other appropriate containment should be used for large spills.
If material can be pumped out, the collected material should be stored in appropriate containers.

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 of the substance or mixture:

Do not allow to come into contact with skin or clothing.
Avoid inhalation of vapour or mist.
Avoid contact with eyes.
Do not swallow.
Keep in tightly closed container.
Keep away from heat and ignition sources.
Take measures against static electricity discharges.
Prevent leaks and spread into the environment and minimise the amount released.
Only use non-sparking tools.

Use according to common rules and practices related to industrial hygiene and safety.
EMPTY DRUMS CAN BE DANGEROUS.
Empty drums contain product residues.
Follow all product safety and label regulations, even if the vessel is empty.
Use with adequate exhaust ventilation.
Use only in an area equipped with explosion-proof extraction ventilation.
Ensure that all devices are electrically earthed prior to starting to transfer.
This material can accumulate static charge based on its inherent physical properties and can therefore be an electrical ignition source for vapours.
As earthing alone does not provide sufficient precaution against static electricity, it is necessary to introduce an inert gas into the container before starting to transfer the material.
Limit speed current to reduce accumulation of static electricity.
Ground storage and collection tank.
7.2 Conditions for safe storage, including incompatibilities:
Store in correctly labelled containers.
Keep behind lock.
Store tightly closed.
Store in a cool and well-ventilated place.
Store according to relevant national regulations.
Keep away from heat and ignition sources.
Do not store with the following product types:

- ✓ Strong oxidising agents.
- ✓ Organic peroxides.
- ✓ Flammable solids.
- ✓ Pyrophoric liquids.
- ✓ Pyrophoric solids.
- ✓ Substances and mixtures liable to self-heat.
- ✓ Substances and mixtures that develop flammable gases in contact with water.
- ✓ Explosives.
- ✓ Gases.

Unsuitable materials for containers:
Nothing known.
7.3 Specific end use:
Refer to the technical data sheet of this product for more information.

SECTION 8: Exposure controls/personal protection measures

8.1 Control parameters:
If exposure limits exist, they are listed below.
If no exposure limits are displayed, no values are applicable.

Component	Regulation	Type of statement	Value
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane	ACGIH	TWA	0.1 mg/m3 , Tin
	Further information: A4: Not classifiable as a human carcinogen; Skin: Danger of absorption through skin		
	ACGIH	STEL	0.2 mg/m3 , Tin
	Further information: A4: Not classifiable as a human carcinogen; Skin: Danger of absorption through skin		
	BE OEL	TGG 8 hr	0.1 mg/m3 , Tin
	Further information: D: Uptake of the agent through the skin, mucous membranes or eyes constitutes an important part of the total exposure. This uptake may result from both direct contact and its presence in the air.		
	BE OEL	TGG 15 min	0.2 mg/m3 , Tin

	Further information: D: Uptake of the agent through the skin, mucous membranes or eyes constitutes an important part of the total exposure. This uptake can result from both direct contact and its presence in the air.		
Tetraethyl silicate	ACGIH	TWA	10 ppm
	BE OEL	TGG 8 hr	44 mg/m3 5 ppm
	2017/164/EU	TWA	44 mg/m3 5 ppm
	Further information: Indicative		
Methanol	ACGIH	TWA	200 ppm
	Further information: Skin: Danger of absorption through skin		
	ACGIH	STEL	250 ppm
	Further information: Skin: Danger of absorption through skin		
	2006/15/EC	TWA	260 mg/m3 200 ppm
	Further information: Indicative; skin: Identifies a potentially significant uptake through the skin		
	BE OEL	TGG 15 min	333 mg/m3 250 ppm
	Further information: D: Uptake of the agent through the skin, mucous membranes or eyes constitutes an important part of the total exposure. This uptake can result from both direct contact and its presence in the air.		
	BE OEL	TGG 8 hr	266 mg/m3 200 ppm
	Further information: D: Uptake of the agent through the skin, mucous membranes or eyes constitutes an important part of the total exposure. This uptake may result from both direct contact and its presence in the air.		
Methyltrimethoxysilane	Dow IHG	TWA	7.5 ppm
Ethanol	ACGIH	TWA	1000 ppm
	Further information: URT irr: Upper respiratory tract irritation		
	ACGIH	STEL	1000 ppm
	Further information: URT irr: Upper respiratory tract irritation		
	BE OEL	TGG 8 hr	1 907 mg/m3 1 000 ppm

A reaction or decomposition product may be formed during handling or processing that has an exposure limit, Methanol, Ethanol

Biological MAC values

Components	CAS No.	Control parameters	Organic trial	Sampling time	Permitted concentration	Basic
Methanol	67-56-1	Methanol	Urine	End of time shift (as soon as possible after exposure ends)	15 mg/l	ACGIH BEI

Recommended observation procedures

Monitoring the concentration of substances in the breathing zone of workers or in the general work area may be necessary to confirm compliance with occupational exposure limits and adequacy of exposure. Biological monitoring may also be appropriate for some substances.

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 exposure - Measurement of inhalation exposure to chemicals - Strategy to comply with occupational exposure limits). European Standard EN 14042 (Workplace atmospheres - Directive on the application and use of procedures for the assessment of exposure to chemical and biological agents). European Standard EN 482 (Workplace atmosphere - General requirements for the implementation of procedures for measuring chemical substances). Reference to national guidelines on methods for the determination of hazardous substances is also 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), UK: methods for determining hazardous substances.
- ✓ Institut für Arbeitsschutz Deutsche Gesetzlichen Unfallversicherung (IFA), Germany.
- ✓ L'Institut National de Recherche et de Securité, (INRS), France.

Derived doses without effect

Ethyl polysilicate

Employees

Acute - systemic effects		Acute - local effects		Long-term - systemic effects		Long-term - local effects	
Skin	Inhalation	Skin	Inhalation	Skin	Inhalation	Skin	Inhalation
n.a.	n.a.	n.a.	n.a.	0.7 mg/kg bw/day	0.985 mg/m3	n.a.	n.a.

Consumers

Acute - systemic effects			Acute - local effects		Long-term - systemic effects			Long-term - local effects	
Skin	Inhalation	Oral	Skin	Inhalation	Skin	Inhalation	Oral	Skin	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	0.25 mg/kg bw/day	0.175 mg/m3	0.25 mg/kg bw/day	n.a.	n.a.

tetraethyl silicate

Employees

Acute - systemic effects		Acute - local effects		Long-term - systemic effects		Long-term - local effects	
Skin	Inhalation	Skin	Inhalation	Skin	Inhalation	Skin	Inhalation
12.1 mg/kg bw/day	85 mg/m3	n.a.	85 mg/m3	12.1 mg/kg bw/day	85 mg/m3	n.a.	85 mg/m3

Consumers

Acute - systemic effects			Acute - local effects		Long-term - systemic effects			Long-term - local effects	
Skin	Inhalation	Oral	Skin	Inhalation	Skin	Inhalation	Oral	Skin	Inhalation
8.4 mg/kg bw/day	25 mg/m3	n.a.	n.a.	25 mg/m3	8.4 mg/kg bw/day	25 mg/m3	n.a.	n.a.	25 mg/m3

Methanol

Employees

Acute - systemic effects		Acute - local effects		Long-term - systemic effects		Long-term - local effects	
Skin	Inhalation	Skin	Inhalation	Skin	Inhalation	Skin	Inhalation
20 mg/kg bw/day	130 mg/m3	n.a.	130 mg/m3	20 mg/kg bw/day	130 mg/m3	n.a.	130 mg/m3

Consumers

Acute - systemic effects			Acute - local effects		Long-term - systemic effects			Long-term - local effects	
Skin	Inhalation	Oral	Skin	Inhalation	Skin	Inhalation	Oral	Skin	Inhalation
4 mg/kg bw/day	26 mg/m3	4 mg/kg bw/day	n.a.	26 mg/m3	4 mg/kg bw/day	26 mg/m3	4 mg/kg bw/day	n.a.	26 mg/m3

Dimethyldimethoxysilane

Employees

Acute - systemic effects		Acute - local effects		Long-term - systemic effects		Long-term - local effects	
Skin	Inhalation	Skin	Inhalation	Skin	Inhalation	Skin	Inhalation
20 mg/kg bw/day	130 mg/m3	n.a.	130 mg/m3	2.8 mg/kg bw/day	19.7 mg/m3	n.a.	130 mg/m3

Consumers

Acute - systemic effects			Acute - local effects		Long-term - systemic effects			Long-term - local effects	
Skin	Inhalation	Oral	Skin	Inhalation	Skin	Inhalation	Oral	Skin	Inhalation
4 mg/kg bw/day	26 mg/m3	4 mg/kg bw/day	n.a.	26 mg/m3	1 mg/kg bw/day	3.5 mg/m3	1 mg/kg bw/day	n.a.	26 mg/m3

Methyltrimethoxysilane

Employees

Acute - systemic effects		Acute - local effects		Long-term - systemic effects		Long-term - local effects	
Skin	Inhalation	Skin	Inhalation	Skin	Inhalation	Skin	Inhalation
n.a.	n.a.	n.a.	n.a.	3.6 mg/kg bw/day	25.6 mg/m3	n.a.	n.a.

Consumers

Acute - systemic effects			Acute - local effects		Long-term - systemic effects			Long-term - local effects	
Skin	Inhalation	Oral	Skin	Inhalation	Skin	Inhalation	Oral	Skin	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	7.2 mg/kg bw/day	6.25 mg/m3	0.26 mg/kg bw/day	n.a.	n.a.

Predicted concentration without effect

Ethyl polysilicate

Compartment	PNEC
Freshwater	0.0061 mg/l
Intermittent use/intermittent emission	0.061 mg/l
Seawater	0.00061 mg/l
Sewage treatment plant	200 mg/l
Freshwater deposition	0.138 mg/kg dry weight (d.g.)
Sea deposits	0.0138 mg/kg dry weight (d.g.)
Bottom	0.024 mg/kg dry weight (d.g.)

Tetraethyl silicate

Compartment	PNEC
Freshwater	0.192 mg/l
Intermittent use/intermittent emission	10 mg/l
Seawater	0.0192 mg/l
Sewage treatment plant	4000 mg/l
Freshwater deposition	0.18 mg/kg dry weight (d.g.)
Sea deposits	0.018 mg/kg dry weight (d.g.)
Bottom	0.05 mg/kg dry weight (d.g.)

Methyltrimethoxysilane

Compartment	PNEC
Freshwater deposition	0.73 mg/kg
Sea deposits	0.073 mg/kg
Bottom	0.03 mg/kg

8.2 Exposure control measures:

Technical controls:

Provide local exhaust ventilation, or other technical measures to keep atmospheric concentrations below limit values.
If no limits exist, general ventilation should be sufficient for most operations.
Local extraction may be necessary for some work.

Personal protection devices:

Eye/face protection:

Use safety glasses with side shields.
Safety glasses with side shields must comply with standard EN 166 or a similar standard.
If exposure causes eye irritation, use a full-face mask (complying with Standard EN 136) with a filter for organic vapours (complying with Standard EN 14387).

Skin protection

Hand protection:

Use chemical-resistant gloves classified under EN374: gloves for protection against chemicals and micro-organisms.
Examples of barrier glove materials to be preferred:

- ✓ Butyl rubber
- ✓ Natural rubber (latex).
- ✓ Neoprene.
- ✓ Nitrile/butadiene rubber ("nitrile" or "NBR").
- ✓ Ethyl vinyl alcohol laminate ("EVAL").
- ✓ Polyvinyl chloride ("PVC" or "vinyl").

When prolonged or frequently repeated contact may occur, gloves with a protection class 5 or higher (breakthrough time greater than 240 minutes according to EN 374) are recommended.
When only brief contact is expected, gloves with a protection class 3 or higher (breakthrough time greater than 60 minutes according to EN 374) are recommended.
Glove thickness alone is not a good indicator of the level of protection a glove gives against a chemical, as this level of protection is also highly dependent on the specific composition of the material the glove is made of.
Depending on the material model and type, the thickness of the glove should generally be more than 0.35 mm. to provide sufficient protection in continuous and regular contact with the fabric.
As an exception to this general rule, multilayer laminate gloves are known to provide further protection at thicknesses below 0.35 mm.
Other glove materials with a thickness less than 0.35 mm. can provide sufficient protection when only brief contact is expected.
ATTENTION: The selection of specific gloves for a given application and time of use in a workplace should also take into account all other relevant factors at the workplace, such as (but not limited to): other chemicals that may be handled, physical requirements (protection against cutting/ piercing, dexterity, thermal protection), possible physical reactions to the glove material, and the instructions/specifications of the glove supplier.

Other protection:

Use non-permeable protective clothing that can withstand this product.
The choice of specific items such as face mask, gloves, boots, apron or full suit depends on the work.

Respiratory protection:

A respirator should be worn when there is a risk of exceeding exposure limits.
If no exposure limits or guidelines exist, use an approved respirator.
When respiratory protection is required, use an approved fresh air respirator (type: positive pressure) or an approved fresh air respirator (type: positive pressure) with supplemental air supply.
In an emergency, use an approved compressed air breathing apparatus (type: positive pressure).

Managing environmental exposure

See SECTION 7: Handling and storage and SECTION 13:Instructions for disposal measures to prevent excessive exposure to the environment during use and waste disposal.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Prevent

Physical state:	liquid
Colour:	Clear to slightly turbid, colourless
Odour:	not significant
Odour threshold:	No data available
pH:	Not applicable, substance/mixture not soluble (in water)

Melting/freezing point

Melting point/range:	No data available
Freezing point:	Not implemented

Boiling point or initial boiling point and boiling range

Boiling point (760 mmHg):	> 65°C

Flash point:	Seta closed cup 25°C
Flammability (solid, gas):	Not applicable
Flammability (liquids):	Not performed
Lower explosion limit:	No data available
Upper explosion limit:	No data available
Vapour pressure:	No data available
Relative vapour density (air = 1):	No data available
Relative density (water = 1):	1,004
Solubility in water:	Insoluble
Partition coefficient: n-octanol/water:	Not performed
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Kinematic viscosity:	No data available
Particle characteristics	
Particle size:	Not applicable

9.2 Other information

Molecular weight:	No data available
Dynamic viscosity:	30 mPa.s
Explosive properties:	Non-explosive
Oxidising properties:	The substance or mixture is not classified as oxidising.
Self-heating substances:	The substance or mixture is not classified as self-heating.
Corrosion rate of metal:	Not corrosive to metals
Evaporation rate (Butyl acetate = 1):	No data available

NOTE :The physical and chemical data shown in section 9 are typical values for this product and are not intended as product specifications.

SECTION 10: Stability and reactivity

10.1 Reactivity:
Not classified as hazardous due to reactivity.
10.2 Chemical Stability:
Stable under normal conditions.
10.3 Potential Hazardous Reactions:
May react with strongly oxidising substances.
Vapours may form explosive mixture with air.
Flammable liquid and vapour.
10.4 Conditions to avoid:
Avoid static discharge.
Heat, flames and sparks.
10.5 Chemically Interacting Materials:
Avoid contact with oxidising substances.
10.6 Hazardous Decomposition Products:
Decomposition products may include - among others - the following: Formaldehyde. Methanol. Ethanol.

SECTION 11: Toxicological information

Toxicological information is displayed in this section when 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 stated)
Endpoints acute toxicity:

Acute oral toxicity
Information for the product:
Very low toxicity if swallowed.
Ingestion may cause irritation of the mouth, throat and gastrointestinal tract.
May cause nausea or vomiting.
As product. The oral LD50 of a single dose has not been determined.
Based on information for component(s):
LD50, > 5 000 mg/kg estimated
Information for components:
Ethyl polysilicate
Based on the information for a similar product: LD50, Rat, > 7 500 mg/kg
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
LD50, Rat, male and female, 892 mg/kg OECD 401 or equivalent
tetraethyl silicate
LD50, Rat, male and female, > 2 500 mg/kg OECD Test Guideline 425
No deaths were observed at this concentration.
Methanol
Methanol is extremely toxic to humans and can cause effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis and degenerative damage to other organs, including life, kidneys and heart.
Effects may occur later.
LD50, Rat, > 5 000 mg/kg
Fatal dose, Humans, 340 mg/kg estimated
Fatal dose, Humans, 29 - 237 ml estimated
Dimethyldimethoxysilane
LD50, Rat, > 2 000 - 5 000 mg/kg
This substance can hydrolyse to release methanol.
Methanol is extremely toxic to humans and can cause effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis and degenerative damage to other organs, including life, kidneys and heart.
Methyltrimethoxysilane
LD50, Rat, male and female, 11 685 mg/kg
This substance can hydrolyse to release methanol.
Methanol is extremely toxic to humans and can cause effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis and degenerative damage to other organs, including life, kidneys and heart.

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, > 2 000 mg/kg estimated
Information for components:
Ethyl polysilicate
Based on the information for a similar product: LD50, Rabbit, 4 290 mg/kg
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
LD50, Rat, > 2 000 mg/kg
tetraethyl silicate
LD50, Rabbit, 5 878 mg/kg
Methanol

The effects of methanol are the same as those observed with oral ingestion and exposure via inhalation and include effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis, damage to other organs such as the liver, kidneys and heart and even death.
LD50, Rabbit, 15 800 mg/kg
Dimethyldimethoxysilane
The dermal LD50 has not been determined.
This substance can hydrolyse to release methanol.
The effects of methanol are the same as those observed with oral ingestion and exposure via inhalation and include effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis, damage to other organs such as the liver, kidneys and heart and even death.
Methyltrimethoxysilane
LD50, Rabbit, male and female, > 9 500 mg/kg OECD 402 or equivalent
This substance can hydrolyse to release methanol.
The effects of methanol are the same as those observed with oral ingestion and exposure via inhalation and include effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis, damage to other organs such as the liver, kidneys and heart and even death.
Acute toxicity by inhalation
Information for the product:
It is unlikely that short-term exposure (a few minutes) would cause adverse effects.
Vapours of heated product or mists may cause irritation of the respiratory organs.
Overexposure can lead to Headaches.
May cause drowsiness and dizziness.
As product. The LC50 was not determined.
Information for components:
Ethyl polysilicate
Based on the information for a similar product: LC50, Rat, 4 h, dust/mist, > 7.35 mg/l
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
As product. The LC50 was not determined.
Tetraethyl silicate
Prolonged excessive exposure can cause adverse effects.
The vapours may cause irritation of the upper respiratory tract (nose and throat) and lungs.
LC50, Rat, female, 4 h, dust/mist, > 16.8 mg/l Guideline test OECD 403
LC50, Rat, male, 4 h, dust/mist, 10 mg/l Guideline test OECD 403
LC50, Rat, 4 h, vapours, 17 mg/l
Methanol
Easily accessible vapour concentrations can cause serious adverse effects, even death.
At lower concentrations: May induce respiratory irritation and central nervous system depression.
Symptoms may include headache and dizziness and progress to lack of coordination and loss of consciousness.
Inhalation of methanol can cause effects ranging from headache, narcosis and weakening of vision, to metabolic acidosis, blindness and even death.
Effects may occur later.
LC50, Rat, 4 h, vapours, 3 mg/l
Dimethyldimethoxysilane
LC50, Rat, 4 h, vapours, > 4.7 mg/l
This substance can hydrolyse to release methanol.
Inhalation of methanol can cause effects ranging from headache, narcosis and weakening of vision, to metabolic acidosis, blindness and even death.
Methyltrimethoxysilane
LC50, Rat, male and female, 6 h, vapours, > 7605 ppm Guideline test OECD 403
This substance can hydrolyse to release methanol.
Inhalation of methanol can cause effects ranging from headache, narcosis and weakening of vision, to metabolic acidosis, blindness and even death.

Skin corrosion/irritation
Causes skin irritation.
Information for the product:
Based on information for component(s):
Brief contact may cause skin irritation with local redness.
Can cause dehydration and scaling of the skin.
Information for components:
Ethyl polysilicate
Short-term contact with the skin is essentially non-irritant.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Brief contact may cause skin irritation with local redness.
tetraethyl silicate
Brief contact may cause moderate skin irritation with local redness.
Can cause dehydration and scaling of the skin.
Methanol
Prolonged contact may cause mild skin irritation with local redness.
Dimethyldimethoxysilane
Short-term contact with the skin is essentially non-irritant.
Methyltrimethoxysilane
Brief exposure (skin contact) may cause mild skin irritation with local redness.
Serious eye damage/eye irritation
Information for the product:
Based on information for component(s):
May cause slight eye irritation.
May cause transient, mild corneal damage.
Vapours may cause eye irritation, with mild discomfort and redness.
Information for components:
Ethyl polysilicate
May cause eye irritation.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
May cause slight eye irritation.
May cause transient, mild corneal damage.
tetraethyl silicate
Based on product testing:
Essentially non-irritating to the eyes.
Corneal damage is unlikely.
Based on human experience.
Vapours may cause eye irritation, with mild discomfort and redness.
Methanol
May cause eye irritation.
Dimethyldimethoxysilane
Essentially non-irritating to the eyes.
Methyltrimethoxysilane
May cause transient mild eye irritation
Corneal damage is unlikely.
Sensitisation
In case of skin hypersensitivity:
May cause allergic skin reaction.
Information for the product:
In case of skin hypersensitivity:
Contains one or more ingredients that caused allergic skin sensitisation in the Guinean piglet.
Respiratory sensitisation:

No relevant data found.
Information for components:
Ethyl polysilicate
In case of skin hypersensitivity:
Did not cause allergic skin reactions when tested with guinea pigs.
Respiratory sensitisation:
No relevant data found.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Has caused allergic skin reactions in guinea pig trials.
Respiratory sensitisation:
No relevant data found.
tetraethyl silicate
Did not cause allergic skin reactions when tested with guinea pigs.
Respiratory sensitisation:
No relevant data found.
Methanol
In case of skin hypersensitivity:
No relevant data found.
Respiratory sensitisation:
No relevant data found.
Dimethyldimethoxysilane
For similar substance(s)
Did not cause allergic skin reactions when tested with guinea pigs.
Respiratory sensitisation:
No relevant data found.
Methyltrimethoxysilane
In case of skin hypersensitivity:
No potential for contact allergy in mice was demonstrated.
Respiratory sensitisation:
No relevant data found.

Specific target organ system toxicity (single exposure)

Information for the product:
Contains components classified as toxic to specific target organs at single exposure, category 3.
Information for components:
Ethyl polysilicate
Evaluation of available data suggests that this material is not an STOT-SE toxin.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Available data are insufficient to determine an exposure-specific target organ toxicity.
tetraethyl silicate
May cause respiratory irritation.
Route of exposure: Inhalation
Target organs: respiratory system
Methanol
Causes damage to organs.
Target organs: Eyes, Central nervous system
Dimethyldimethoxysilane
Evaluation of available data suggests that this material is not an STOT-SE toxin.
Methyltrimethoxysilane
Evaluation of available data suggests that this material is not an STOT-SE toxin.

Inhalation hazard

Information for the product:
Based on the physical properties, inhalation hazards are unlikely to exist.

Information for components:
Ethyl polysilicate
Based on the physical properties, inhalation hazards are unlikely to exist.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Based on the physical properties, inhalation hazards are unlikely to exist.
tetraethyl silicate
Based on available information, no inhalation hazard could be identified.
Methanol
May be harmful if swallowed and enter the respiratory tract.
Dimethyldimethoxysilane
Based on the physical properties, inhalation hazards are unlikely to exist.
Methyltrimethoxysilane
Material is not classified as an inhalation hazard based on insufficient data, but low-viscosity materials may be inhaled into the lungs during ingestion or vomiting.

Chronic toxicity (represents long-term repeated dose exposure resulting in chronic/delayed effects - no immediate effects known unless otherwise stated)

Specific target organ system toxicity (repeated exposure)

Information for the product:
Product test dates not available.
Information for components:
Ethyl polysilicate
In animals, effects to the following organs have been observed:

- ✓ Kidney.
- ✓ Liver
- ✓ Airways.
- ✓ Long.

Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
In animals, effects to the following organs have been observed:

- ✓ Blood
- ✓ Kidney
- ✓ Liver
- ✓ Immunity system.

tetraethyl silicate
In animals, effects to the following organs have been observed:

- ✓ Kidney.

Methanol
Methanol is extremely toxic to humans and can cause effects to the central nervous system, obstruction of vision to blindness, metabolic acidosis and degenerative damage to other organs, including life, kidneys and heart.
Dimethyldimethoxysilane
In animals, effects to the following organs have been observed:

- ✓ Liver
- ✓ Male reproductive organs.

This material contains dimethyldimethoxysilane.
Repeated exposure of rats to dimethyldimethoxysilane resulted in feeling an accumulation of protoporphyrin in the liver.
Without knowledge of the specific mechanism leading dot accumulation of protoporphyrin, the relevance of these findings for humans is unknown.
Methyltrimethoxysilane
Based on available data, repeated exposures are not expected to cause significant adverse effects.

Carcinogenicity

Information for the product:

Product test dates not available.
Information for components:
Ethyl polysilicate
No relevant data found.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
No relevant data found.
tetraethyl silicate
No relevant data found.
Methanol
Did not cause cancer in laboratory animals.
Dimethyldimethoxysilane
No relevant data found.
Methyltrimethoxysilane
No relevant data found.

Teratogenicity

Information for the product:
Product test dates not available.
Information for components:
Ethyl polysilicate
Has been toxic to the foetus in laboratory animals at doses toxic to the mother.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
No relevant data found.
tetraethyl silicate
Did not cause birth defects or other effects to the foetus, even at doses that caused toxic effects in the mother.
Methanol
Methanol caused birth defects in mice, at dose non-toxic to the mother animal as well as mild behavioural effects in the offspring of rats.
Dimethyldimethoxysilane
Has caused birth defects in laboratory animals.
Methyltrimethoxysilane
Did not cause birth defects or other foetal effects in laboratory animals.

Reproductive toxicity

Information for the product:
Product test dates not available.
Information for components:
Ethyl polysilicate
In animal studies, the product did not interfere with reproduction. In animal studies, the product had no effects on reproduction.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
No relevant data found.
tetraethyl silicate
In animal studies, the product had no effects on reproduction. In animal studies, the product did not interfere with reproduction.
Methanol
In animal studies, the product had no effects on reproduction.
Dimethyldimethoxysilane
In studies on animals, the product was shown to impair fertility.
Methyltrimethoxysilane
In animal studies, the product had no effects on reproduction.

Mutagenicity

Information for the product:
Product test dates not available.

Information for components:
Ethyl polysilicate
Results of genetic toxicity studies in vitro were negative.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
In vitro studies of genetic toxicity were negative in some cases and positive in others.
Genetic toxicity studies on animals were negative.
tetraethyl silicate
Genetic toxicity studies in vitro were predominantly negative.
Methanol
Results of genetic toxicity studies in vitro were negative.
Genetic toxicity studies in animals were negative in some cases and positive in others.
Dimethyldimethoxysilane
Results of genetic toxicity studies in vitro were negative.
Methyltrimethoxysilane
In vitro studies of genetic toxicity were negative in some cases and positive in others.
Genetic toxicity studies on animals were negative.
11.2 Information on other hazards
Endocrine-disrupting properties
The substance/mixture does not contain any components believed 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 level 0.1% or higher.
Information for components:
Ethyl polysilicate
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
tetraethyl silicate
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
Methanol
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
Dimethyldimethoxysilane
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
Methyltrimethoxysilane
This substance is not considered to have endocrine-disrupting properties according to Article 57(f) of REACH, Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 12: Ecological information

Ecotoxicological information appears in this section when these data are available.
12.1 Toxicity:
Ethyl polysilicate
Acute toxicity to fish
Substance is toxic to aquatic organisms (LC50/EC/50/IC50 are between 1 and 10 mg/L for the most sensitive species).
EC50, Brachydanio rerio (zebrafish), semi-static test, 96 h, > 119 mg/l
Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (large water flea), static test, 48 h, 6.1 mg/l, OECD Test Guideline 202
Acute toxicity to algae/ aquatic plants

EC50, Desmodesmus subspicatus (green algae), Growth rate, 72 h, > 20 mg/l, OECD test guideline 201
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Acute toxicity to fish
Dust is harmful to aquatic organisms (LC50/EC50/IC50 are between 10 and 100 mg/L for the most sensitive species).
For similar substance(s)
LC50, Zebra fish (Danio/Brachydanio rerio), semi-static test, 96 h, > 100 mg/l, OECD Guideline 203 or Equivalent
Acute toxicity to aquatic invertebrates
EC50, Daphnia magna, static test, 48 h, 39 mg/l, OECD Guideline 202 or Equivalent
Acute toxicity to algae/ aquatic plants
ErC50, Algae (Scenedesmus subspicatus), Growth rate, 72 h, Growth rate, 7.6 mg/l, OECD Guideline 201 or Equivalent
For similar substance(s)
NOEC, Algae (Scenedesmus subspicatus), Growth rate, 72 h, Growth rate, 1.1 mg/l, OECD Guideline 201 or Equivalent
Toxicity to bacteria
For similar substance(s)
EC50, Bacteria, 3 h, Respiratory rate, 14 mg/l
tetraethyl silicate
Acute toxicity to fish
Material is not classified as hazardous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 are greater than 100 mg/L for the most sensitive species).
LC50, zebrafish (Brachydanio rerio), 96 h, > 245 mg/l, Directive 67/548/EEC, Annex V, C.1.
Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (large water flea), 48 h, > 75 mg/l, OECD test guideline 202
Acute toxicity to algae/ aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 72 h, Growth inhibition, > 100 mg/l, OECD test guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 h, Growth inhibition, > 100 mg/l, OECD test guideline 201
Toxicity to bacteria
EC50, activated sludge, 3 h, Respiratory rate, > 100 mg/l, OECD test guideline 209
Methanol
Acute toxicity to fish
On an acute basis, the product is practically non-toxic to aquatic organisms (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
Material is not classified as hazardous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 are greater than 100 mg/L for the most sensitive species).
LC50, Bluegill sunfish(Lepomis macrochirus), flow-through test, 96 h, 15 400 mg/l
Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (large water flea), 48 h, > 10 000 mg/l
Acute toxicity to algae/ aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 96 h, Growth rate, 22 000 mg/l, OECD Guideline 201 or Equivalent
Toxicity to bacteria
IC50, activated sludge, 3 h, Respiratory rate, > 1 000 mg/l, OECD test guideline 209
Chronic toxicity for fish
NOEC, Oryzias latipes (Japanese rice fish), 200 h, 15 800 mg/l
Dimethyldimethoxysilane
Acute toxicity to fish
Material is not classified as hazardous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 are greater than 100 mg/L for the most sensitive species).

Based on data from similar materials
LC50, Oncorhynchus mykiss (rainbow trout), 96 h, > 126 mg/l, Guideline test OECD 203
Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (large water flea), 48 h, > 119 mg/l, OECD test guideline 202
Acute toxicity to algae/ aquatic plants
Based on data from similar materials
EC50, Pseudokirchneriella subcapitata (green algae), 72 h, > 118 mg/l, OECD Test Guideline 201
Toxicity to bacteria
Based on data from similar materials
EC50, 3 h, > 100 mg/l, OECD test guideline 209
Methyltrimethoxysilane
Acute toxicity to fish
Material is not classified as hazardous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 are greater than 100 mg/L for the most sensitive species).
LC50, Oncorhynchus mykiss (rainbow trout), 96 h, > 110 mg/l, OECD Guideline 203 or Equivalent
Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (large water flea), flow-through test, 48 h, > 122 mg/l, OECD Test Guideline 202
Acute toxicity to algae/ aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 72 h, Growth inhibition, > 3.6 mg/l, OECD test guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 h, Growth inhibition, >= 3.6 mg/l, OECD test guideline 201
Toxicity to bacteria
EC10, activated sludge, 3 h, Respiratory rate, > 100 mg/l, OECD test guideline 209
Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (large water flea), 28 d, number of progeny, >= 10 mg/l
Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (large water flea), semi-static test, 21 d, number of progeny, >= 10 mg/l
12.2 Persistence and Degradability:
Ethyl polysilicate
Biodegradability: Based on the strict testing guidelines, this material cannot be considered directly biodegradable; however, these results do not necessarily imply that the material is not biodegradable under environmental conditions.
Time interval per 10 days : unsuccessful
Biodegradation: 47 %
Exposure time: 28 d
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Biodegradability: For similar substance(s) The material is expected to be very slowly degradable in the environment.
Does not pass OECD / EEC tests for biodegradability.
For similar substance(s) Time interval per 10 days : unsuccessful
Biodegradation: 3 %
Exposure time: 28 d
Method: OECD Directive 301F or equivalent
tetraethyl silicate
Biodegradability: The material biodegrades easily.
Passes OECD test(s) for rapid biodegradability.
Time interval per 10 days: passed
Biodegradation: 98 %
Exposure time: 28 d
Method: OECD Directive 301A or equivalent
Stability in water (half-life)

Hydrolysis, DT50, 4.4 h, pH 7, Half-life temperature 25 °C, OECD test guideline 111
Methanol
Biodegradability: The material biodegrades easily.
Passes OECD test(s) for rapid biodegradability.
Dimethyldimethoxysilane
Biodegradability: For similar substance(s) This substance is not readily biodegradable according to OECD/EC criteria.
Time interval per 10 days : unsuccessful
Biodegradation: 0 %
Exposure time: 28 d
Stability in water (half-life)
Hydrolysis, DT50, < 0.6 h, pH 7
Methyltrimethoxysilane
Biodegradability: Based on the strict testing guidelines, this material cannot be considered directly biodegradable; however, these results do not necessarily imply that the material is not biodegradable under environmental conditions.
Biodegradation: 54 %
Exposure time: 28 d
Method: Regulation (EC) No 440/2008, Annex, C.4-A
12.3 Bioaccumulation:
Ethyl polysilicate
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0,04 estimated
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
Bioaccumulation: No relevant data found.
tetraethyl silicate
Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or log Pow between 3 and 5).
Partition coefficient: n-octanol/water (log Pow): 3,18 EU Method A.8 (partition coefficient)
Methanol
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.77 Measured
Bioconcentration factor (BCF): < 10 Leuciscus idus (golden bindweed) Measured
Dimethyldimethoxysilane
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): Pow: 2 estimated
Bioconcentration factor (BCF): 3.16 estimated
Methyltrimethoxysilane
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.82 estimated
12.4 Mobility in soil:
Ethyl polysilicate
Partition coefficient (Koc): 190 Guideline test OECD 121
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane
No relevant data found.
tetraethyl silicate
No relevant data found.
Methanol
Partition coefficient (Koc): 0.44 estimated
Dimethyldimethoxysilane
Partition coefficient (Koc): 168.6 estimated
Methyltrimethoxysilane

No relevant data found.

12.5 Results of PBT and vPvB assessment:

Ethyl polysilicate

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

Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane

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

tetraethyl silicate

This substance is not considered persistent, bioaccumulative nor toxic (PBT).
This substance is considered neither very persistent nor very bioaccumulative (vPvB).

Methanol

This substance is not considered persistent, bioaccumulative nor toxic (PBT).
This substance is considered neither very persistent nor very bioaccumulative (vPvB).

Dimethyldimethoxysilane

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

Methyltrimethoxysilane

This substance is not considered persistent, bioaccumulative nor toxic (PBT).
This substance is considered neither very persistent nor very bioaccumulative (vPvB).

12.6 Endocrine disrupting properties

The substance/mixture does not contain any components believed 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 level 0.1% or higher.

Ethyl polysilicate

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

Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane

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

tetraethyl silicate

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

Methanol

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

Dimethyldimethoxysilane

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

Methyltrimethoxysilane

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

12.7 Other Harmful Effects:

Ethyl polysilicate

This substance is not on the Montreal Protocol list of ozone-depleting substances.

Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane

This substance is not on the Montreal Protocol list of ozone-depleting substances.

tetraethyl silicate

This substance is not on the Montreal Protocol list of ozone-depleting substances.

Methanol

This substance is not on the Montreal Protocol list of ozone-depleting substances.

Dimethyldimethoxysilane

This substance is not on the Montreal Protocol list of ozone-depleting substances.

Methyltrimethoxysilane

This substance is not on the Montreal Protocol list of ozone-depleting substances.

SECTION 13: Disposal instructions

13.1 Waste treatment methods:

Do not discharge into sewers, soil or surface water.
This product, when disposed of in its unused and uncontaminated state, must be treated as hazardous waste according to EC Directive 2008/98/EC.
Disposal practices must comply with all national and provincial laws and any municipal or local bylaws on hazardous waste.
Additional assessments may be required for used, contaminated and residual material.
The assignment of an appropriate EWC waste group as well as an EWC waste code specific to this product depends on the application for which this product has been used.
Consultation with waste management service.

SECTION 14: Information relating to transport

14.1 UN number

ADR/RID:	UN 1993
IMO/IMDG:	UN 1993
IATA/ICAO:	UN 1993

14.2 Proper cargo name according to UN model regulations

ADR/RID:	FLAMMABLE LIQUID, N.O.S. (Methyltrimethoxysilane, Tetraethoxysilane)
IMO/IMDG:	FLAMMABLE LIQUID, N.O.S.(Methyltrimethoxysilane, Tetraethoxysilane)
IATA/ICAO:	Flammable liquid, n.o.s.(Methyltrimethoxysilane, Tetraethoxysilane)

14.3 Transport hazard class(es)

ADR/RID:	3
IMO/IMDG:	3
IATA/ICAO:	3

14.4 Packing group

ADR/RID:	III
IMO/IMDG:	III
IATA/ICAO:	III

14.5 Environmental hazards

ADR/RID:	Ethyl polysilicate
IMO/IMDG:	Ethyl polysilicate.
IATA/ICAO:	Not applicable.

14.6 Special precautions for the user

ADR/RID:	Hazard identification number: 30.
IMO/IMDG:	EMS: F-E, S-E
IATA/ICAO:	No data available.

14.7 Transport in bulk in accordance with Annex II to MARPOL 73/78 and the IBC Code

Consult IMO regulations before transporting bulk by sea.
This information is not intended to disclose all specific legislation, operational requirements/information about this product.
Additional information on transport can be obtained from a sales representative, or from customer service.
It is the responsibility of the transport company to comply with all legal provisions relating to the transport of goods.

SECTION 15: Statutory information

15.1 Safety, health and environmental regulations and legislation specific to the substance or mixture:

REACH Regulation (EC) No 1907/2006

This product contains components that are registered, exempt from registration, considered to be registered or not subject to registration as regulated by Regulation (EC) No 1907/2006 (REACH).
The aforementioned indications of REACH registration status are provided to the best of our knowledge and are assumed to be accurate as of the date shown above.

However, express or implied warranties are given.
It is the responsibility of the buyer/user 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):
Restriction conditions for the following dates should be considered:
Number on the list 3, 75
Bis [(2-ethyl-2,5-dimethylhexanoyl) oxy] (dimethyl) stannane (Number on list 20)
Methanol (Number on list 69, 75)
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Regulation details: FLAMMABLE LIQUIDES
Number in Regulation: P5c
5 000 t
50 000 t
Indicated in regulation: ENVIRONMENTAL DATA
Number in regulation: E2
200 t
500 t
Further information
Take into account Directive 94/33/EC on the protection of young people at work or stricter national legislation, if 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-phrases in sections 2 and 3

H225:	Highly flammable liquid and vapour.
H226:	Flammable liquid and vapour.
H301:	Toxic if swallowed.
H302:	Harmful if swallowed.
H311:	Toxic in contact with skin.
H315:	Causes skin irritation.
H317:	May cause an allergic skin reaction.
H319:	Causes severe eye irritation.
H331:	Toxic by inhalation.
H332:	Harmful by inhalation.
H335:	May cause respiratory tract irritation.
H360F:	May impair fertility.
H370:	Causes damage to organs if swallowed.
H411:	Toxic to aquatic organisms with long-lasting effects.
H412:	Harmful to aquatic life with long lasting effects.

Classification and procedure are used to derive the classification for mixtures from Directive (EC) No 1272/2008
Flam. Liq. - 3 - H226 - Based on product data or assessment
Skin Irrit. - 2 - H315 - Calculation method
Skin Sens. - 1 - H317 - Calculation method
Aquatic Chronic - 2 - H411 - Calculation method

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If this version of the safety data sheet (SDS) contains significant changes from the previous version, these are listed below.
If no significant changes are shown, no significant changes have taken place.
SECTION 2: IDENTIFICATION OF DANGERS/Safety recommendations
SECTION 3: COMPOSITION AND INFORMATION ON INGREDIENTS
SECTION 8: MEASURES TO CONTROL BLOOD DETERMINATION/PERSONAL PROTECTION/Redirected doses without effect
SECTION 8: MEASURES TO CONTROL BLOOD DETERMINATION/PERSONAL PROTECTION/Predicted no-effect concentration
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES/Freezing point
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES/Cooking point (760 mmHg)
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES/VAMPLE POINT
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES/Flammability (solid, gas)
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES/Flammability (liquids)
SECTION 11: TOXICOLOGICAL INFORMATION/Acute oral toxicity
SECTION 11: TOXICOLOGICAL INFORMATION/Specific target organ system toxicity (repeated exposure)
SECTION 11: TOXICOLOGICAL INFORMATION/Carcinogenicity
SECTION 11: TOXICOLOGICAL INFORMATION/Teratogenicity
SECTION 11: TOXICOLOGICAL INFORMATION/Reproductive toxicity
HEADING 11: TOXICOLOGICAL INFORMATION/Mutagenicity
SECTION 12: ECOLOGICAL INFORMATION/Toxicity
SECTION 12: ECOLOGICAL INFORMATION/Results of PBT and vPvB assessment
SECTION 15: REGULATIONS/REACh Regulation (EC) No 1907/2006
SECTION 15: REGULATION/REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII).

Changes include identification, hazards, tox/eco-tox information and the addition/disposal of ingredients, and regulatory information, hazard information, use, risk management measures and other significant changes to the product's regulations. A detailed explanation of the changes can be obtained upon request.

Edge lettering

2006/15/EC:	Indicative occupational exposure limit values
2017/164/EU:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
ACGIH:	USA. ACGIH Threshold Limit Values (TLV).
ACGIH BEI:	ACGIH - Biological Exposure Indices (BEI - biological exposure indices)
BE OEL:	Occupational exposure limits
Dow IHG:	Dow IHG
STEL:	Short-term exposure limit
TGG 15 min:	Short-time value
TGG 8 hr:	Limit value
TWA:	Time-weighted average
Acute Tox.:	Acute toxicity
Aquatic Chronic:	(Chronic) Aquatic long-term hazard
Eye Irrit.:	Eye irritation
Flam. Liq.:	Flammable liquids
Repr.:	Reproductive toxicity
Skin Irrit.:	Skin corrosion/irritation
Skin	sensitisation
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 (ADR Agreement); AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Association for the Testing of Materials; bw - Body Weight; CLP - Regulation on Classification, Labelling and Packaging; Regulation (EC) No 1272/2008; CMR - Carcinogenic, mutagenic or toxic to reproduction; DIN - Standard or the German Institute for Standardisation; DSL - List of substances used indoors (Canada); ECHA - European Chemicals Agency; EC-Number - EINECS number; ECx - Concentration associated with x% response; ELx - Charge capacity associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemicals (Japan); ErCx - Concentration associated with x% growth response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - IMO International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk; IC50 - Half-Maximum Inhibitory Concentration; ICAO - International Civil Aviation Organisation; IECSC - Inventory List of Existing Chemicals in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korean Inventory of Existing Chemicals; LC50 - Lethal concentration for 50% of a test population; LD50 - Lethal dose for 50% of a test population (lethal dose median); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not otherwise specified; NO(A)EC - No discernible (negative) effect on concentration; NO(A)EL - No discernible (negative) effect on Level; NOELR - No discernible effect on cargo capacity; NZIoC - New Zealand inventory of chemicals; OECD - Organisation for Economic Co-operation and Development OECD; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, bioaccumulative and toxic substance; PICCS - Philippine inventory of chemicals and chemical substances; (Q)SAR - (Quantitative) structure-activity relationships; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH); RID - Regulations concerning the International Carriage of Dangerous Goods by Rail (RID); SADT - Self-accelerating decomposition temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwanese Inventory of Chemical Substances; TECI - Inventory of Chemical Substances Existing in Thailand; TRGS - Technical Regulation on Hazardous Substances; TSCA - Toxic Substances Control Act (USA); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Information source and references

This safety data sheet was prepared by Product Regulatory Services and Hazard Communications Groups from information by internal references within our company.

DOW BENELUX B.V. asks each customer or recipient of this Safety Data Sheet (MSDS) to read it carefully and, if necessary, to consult the appropriate experts to understand the information contained in this MSDS and to be aware of the hazards presented by the product. The information in this document is given in good faith and is believed to be correct at the date of creation of this document. However, no express or implied warranty is given. Legal provisions may change and they may be different depending on the country. It is the buyer/user's responsibility to ensure that their activities comply with all local legal provisions. The information in this document relates only to the product as shipped. Since the conditions under which the product is used cannot be controlled by the manufacturer, the buyer/user must determine the conditions under which the product can be used in complete safety. Due to the proliferation of information sources, such as Safety Data Sheets (MSDS) from various manufacturers, we are not and cannot be responsible for MSDS obtained from other sources. If you have received a Safety Data Sheet from another source, or if you are not sure that you are in possession of the latest version of a Safety Data Sheet, please contact us.