

SAFETY DATA SHEET

Graphonix Edge

Date of Preparation: 01/11/2023

Version: 1

1 Identification

1.1 GHS Product Identifier

Product Code: G1GTRC136

Product Name: Graphonix Edge

Other means of identification

N/A

1.2 Recommended use of the chemical and restriction on use

For application to non-porous surfaces including paint, plastic and metal.

1.3 Supplier's details

Revolutionary Protective Solutions Ltd

Unit 21, 2M Trade Park, Beddow Way, Aylesford, Kent, ME207BT

Tel: +44 (0) 1622 717755

Email: info@r-p-solutions.co.uk

Trading Address:

Unit 21, 2M Trade Park, Beddow Way, Aylesford, Kent, ME207BT

1.4 Emergency phone number

+44 (0) 1622 717755 (office hours only)

2 Hazard(s) identification

2.1 Classification of the substance or mixture

Product Definition: Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Acute Toxicity, Category 4

Skin Corrosion, Category 1B, H314

Serious Eye Damage, Category 1, H318

Skin Sensitisation, Category 1, H317

Long-term (chronic) Aquatic hazard, Category 3, H412

See section 16 for full text of the H statements declared above.

See section 11 for more detailed information on health effects and symptoms.

2.2 GHS label elements

Hazard Pictograms

Signal Word: Danger



Hazard Statements:

H302: Harmful if swallowed

H314: Causes severe skin burns and eye damage

H317: May cause an allergic skin reaction

H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302 + P352: IF ON SKIN: Wash with plenty of water

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313: Get medical advice / attention.

P403: Store in a well-ventilated place. Keep container tightly closed.

Hazardous components which must be listed on the label:

Organic polysilazane compound

3-Aminopropyltriethoxysilane

2.3 Other hazards

This product contains decamethylcyclopentasiloxane (D5) that has been identified by the Member State Committee of ECHA as fulfilling the vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See section 12 for additional information.

This product contains dodecamethylcyclohexasiloxane (D6) that has been identified by the Member State Committee of ECHA as fulfilling the vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See section 12 for additional information.

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.

3 Composition/information on ingredients

Chemical Nature: Mixture

3.1 Substances

Chemical Name	CAS-No Registration Number	Classification	Concentration (% w/w)
Organic Polysilazane Compound	475645-84-2	Flam. Liq. 2; H225 Water-react. 3; H261 Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412	> = 15 - < = 25

3-aminopropyltriethoxysilane	919-30-2 01-2119480479-24-XXXX	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317	$\geq 1.5 - \leq 5$
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***Note the above components are supplied to Revolutionary Protective Solutions as a mixture so the total content of the above substances in the finished product does not exceed 45%.**

Graphene	8052-41-3	Flam. Liq. 3; H226 STOT SE 3; H336 STOT RE 1; H372 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	$> 0.5 - < 2$
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3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
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PBT and vPvB substance

CASRN 541-02-6 EC-No. 208-764-9 Index-No. -	01-2119511367-43 UK-01- 3283125615-4	$\geq 60.0 - \leq 70.0\%$	Decamethylcyclotrisiloxane	Not classified Acute toxicity estimate Acute oral toxicity: > 24,134 mg/kg Acute inhalation toxicity: 8.67 mg/l, 4 Hour, dust/mist Acute dermal toxicity: > 2000 mg/kg
CASRN 540-97-6 EC-No. 208-762-8 Index-No. -	01-2119517435-42 UK-01- 8198074963-4	$\geq 30.0 - < 40.0\%$	Dodecamethyl cyclohexasiloxane	Not classified Acute toxicity estimate Acute oral toxicity: > 2000 mg/kg Acute dermal toxicity: > 2,000 mg/kg

***Note the above components are supplied to Revolutionary Protective Solutions as a mixture and the total content of the above substances in the finished product is equal to or less than 75%. The remaining percentage of materials used in this product formulation are not classified as hazardous substances or mixtures according to Regulation (EC) no. 1272/2008.**

General:

First aider needs to protect himself. 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; consult a physician.

Skin Contact:

Take off immediately all contaminated clothing. Rinse skin with water / shower. Call a physician immediately.

Eye Contact:

Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion:

Make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralize.

Protection of First-aiders:

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms/effects, acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of immediate medical attention and special treatment needed, if necessary**Notes to physician:**

No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5 Fire-fighting measures

5.1 Extinguishing Media**Suitable extinguishing media:**

Alcohol-resistant foam, CO₂, Dry Chemical, Dry Sand

Unsuitable extinguishing media:

High volume water jet. Do not use direct water stream. Phosphates.

5.2 Special hazards arising from the substance or mixture**Hazardous combustion products:**

Silicon oxides. Carbon oxides. Formaldehyde.

Unusual Fire and Explosion Hazards:

Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat. Fire burns more vigorously than would be expected. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread along floors.

Caution! In contact with water product releases: Hydrogen
 Ammonia

5.3 Advice for firefighters

Fire Fighting Procedures:

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. 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. 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.

Special protective equipment for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Follow safe handling advice and personal protective equipment recommendations.

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system. Risk of explosion. Discharge into the environment must be avoided. 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

Cover drains. Collect, bind and pump off spills. 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 absorbent. 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. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur.

6.4 Reference to other sections:

See section 1 for emergency contact information.

See section 8 for information on appropriate personal protective equipment.

See section 13 for additional waste treatment information.

7 Handling and storage

7.1 Precautions for safe handling

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. Handle in accordance with good industrial hygiene and safety practice. CPNTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all SDS and label warnings even after container is emptied. Use with local exhaust ventilation. See Engineering measures under EXPOSURE CONTROLS / PERSONAL PROTECTION section

7.2 Conditions for safe storage, including any incompatibilities

Open containers should be tightly closed after use to prevent contaminants and water vapour from entering the product. Containers must be stored in cool (at 25°C max), dry and well-ventilated place. Use with adequate ventilation only. Keep in properly labelled containers. Keep tightly closed. Store in accordance with the particular national regulations.

7.3 Specific end use(s)

See the technical data sheet on this product for further information.

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
Decamethylcyclopentasiloxane	US WEEL	TWA	10 ppm

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 the measurement strategy); European Standard EN 14042 (Workplace atmospheres – Guide for the application and use of procedures for the assessment of 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.

Derived No Effect Level

Decamethylcyclopentasiloxane

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.	97.3 mg/m3	n.a.	24.2 mg/m3	n.a.	97.3 mg/m3	n.a.	24.2 mg/m3

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.	17.3 mg/m3	5 mg/kg bw/day	n.a.	4.3 mg/m3	n.a.	17.3 mg/m3	5 mg/kg bw/day	n.a.	4.3 mg/m3

Dodecamethyl cyclohexasiloxane

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.	6.1 mg/m3	n.a.	11 mg/m3	n.a.	1.22 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.	1.7 mg/kg	n.a.	1.5 mg/m3	n.a.	2.7 mg/m3	1.7 mg/kg bw/day	n.a.	0.3 mg/m3

Predicted No Effect Concentration

Decamethylcyclopentasiloxane

Compartment	PNEC
Fresh water	>0.0012 mg/l
Marine water	>0.00012 mg/l
Fresh water sediment	2.4 mg/kg
Marine sediment	0.24 mg/kg
Soil	1.1 mg/kg
Sewage treatment plant	>10 mg/l

Dodecamethyl cyclohexasiloxane

Compartment	PNEC
Fresh water	2.826 mg/kg
Marine water	0.282 mg/kg
Soil	3.336 mg/kg
Sewage treatment plant	>1.0 mg/l

8.2 Exposure Controls

Engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1

Personal Protective Equipment

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye protection

Tightly fitting safety goggles

Hand Protection

Splash contact

Protective gloves should be worn with a breakthrough time of > 10 minutes.

Glove material - butyl-rubber.

Glove thickness - $\geq 0.5\text{mm}$.

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example:

Protective measures:	Protective clothing
	Type 3 Liquid-tight
	Flame retardant antistatic protective clothing
Respiratory Protection:	Required when vapours/aerosols are generated. Suitable respiratory equipment:
Recommended Filter Type:	ABEK-filter
	Required when vapours/aerosols are generated

The entrepreneur has to ensure that maintenance, cleaning and testing or respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

General advice: Do not flush into surface water or sanitary sewer system. Risk of explosion.

9 Physical and chemical properties

Physical and chemical properties

Appearance

Physical State:	Liquid
Colour:	Clear
Odour:	Slight ammonia smell
Odour threshold:	Not available
pH:	Not available
Melting point/freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash Point:	Cleveland Open Cup: 87°C
Evaporation Rate:	Not available

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

10 Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Can react with strong oxidising agents. Vapours may form explosive mixture with air. Can react with water, alcohols, amines.

10.4 Conditions to avoid

Heat, flames, sparks and moisture.

10.5 Incompatible materials

Avoid contact with oxidizing materials. Avoid water and alcohols.

10.6 Hazardous decomposition products

Possible decomposition products in case of hydrolysis are:

Formaldehyde

Hydrogen

Ammonia

Condensed siloxane

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

Acute oral toxicity:

Information for components

Organic Polysilazane Compound

LD170 5039 3050 (Rat): > 300 – 2,000 mg/kg

Method: OECD TEST Guideline 423

Remarks: Observation Period: 14 days

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Decamethylcyclopentasiloxane

LD50, Rat, male and female, >24,134 mg/kg

Dodecamethyl cyclohexasiloxane

LD50, Rat, male and female, >2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity:

Information for components

Organic Polysilazane Compound Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract.

Decamethylcyclopentasiloxane LC50, Rat, male and female, 4 Hour, dust/mist, 8,67 mg/l

Dodecamethyl cyclohexasiloxane The LC50 has not been determined

Acute dermal toxicity

Information for the product:
No information available

Information for components:

Organic Polysilazane Compound Symptoms: Causes severe burns
As product: The dermal LD50 has not been determined.

Decamethylcyclopentasiloxane LD50, Rabbit, male and female, >2,000 mg/kg No deaths occurred
at this concentration.

Dodecamethyl cyclohexasiloxane LD50, Rabbit, male and female

Skin Corrosion / Irritation

Information for the product:
No information available

Information for components:

Decamethylcyclopentasiloxane Prolonged contact is essentially nonirritating to skin

Dodecamethyl cyclohexasiloxane Essentially nonirritating to skin

Organic Polysilazane Compound Species: Rabbit
Exposure time: 1 h
Method: OECD Test Guideline 404
Result: Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Information for the Product:
No information available

Information for components:

Decamethylcyclopentasiloxane
Essentially nonirritating to eyes

Dodecamethyl cyclohexasiloxane
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Organic Polysilazane Compound

Risk of blindness

Sensitisation

Information for the Product:

No information available

Information for components:

Decamethylcyclopentasiloxane

Did not demonstrate the potential for contact allergy in mice

For respiratory sensitisation: No relevant data found

Dodecamethyl cyclohexasiloxane

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

For respiratory sensitisation: No relevant data found

Organic Polysilazane Compound

No data available

Specific Target Organ Systemic Toxicity (Single Exposure)

Information for the Product:

Product data not available

Information for components:

Decamethylcyclopentasiloxane

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

Dodecamethyl cyclohexasiloxane

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

Organic Polysilazane Compound

No data available

Aspiration Hazard

Information for the Product:

No data available

Information for Components:

Decamethylcyclopentasiloxane

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

Dodecamethyl cyclohexasiloxane

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

Organic Polysilazane Compound

No data available

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Information for the Product:

Based on available data for the component(s), repeated exposures are not anticipated to cause significant adverse effects.

Information for components:

Decamethylcyclopentasiloxane

Based on available data, repeated exposures are not anticipated to cause significant adverse effects

Dodecamethyl cyclohexasiloxane

Based on available data, repeated exposures are not anticipated to cause significant adverse effects

Organic Polysilazane Compound

No data available

Carcinogenicity

Information for the Product:

Product test data not available

Information for components:

Decamethylcyclopentasiloxane

Results from a 2 year repeated vapour inhalation exposure study to rats of decamethylcyclopentasiloxane (D5) indicate effects (uterine endometrial tumours) in female animals. This finding occurred at the highest exposure dose (160 ppm) only. Studies to date have not demonstrated if this effect occurs through a pathway that is relevant to humans.

Dodecamethyl cyclohexasiloxane

No relevant data found.

Organic Polysilazane Compound

No data available

Teratogenicity

Information for the Product:

Product test data not available

Information for components:

Decamethylcyclopentasiloxane

Did not cause birth defects or any other fetal effects in laboratory animals

Dodecamethyl cyclohexasiloxane

No relevant data found

Organic Polysilazane Compound

No data available

Reproductive toxicity

Information for the Product:

Product test data not available

Information for components:

Decamethylcyclopentasiloxane

In animal studies, did not interfere with reproduction

Dodecamethyl cyclohexasiloxane

In animal studies, did not interfere with reproduction

Organic Polysilazane Compound

No data available

Mutagenicity**Information for the Product:**

No data available

Information for components:**Decamethylcyclopentasiloxane**

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

Dodecamethyl cyclohexasiloxane

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

Organic Polysilazane Compound

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:**Decamethylcyclopentasiloxane**

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.

Dodecamethyl cyclohexasiloxane

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.

Organic Polysilazane Compound

No data available

Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice.

12 Ecological information**12.1 Toxicity**

There are no data available on the mixture itself.

Information for components

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

Conclusion/Summary: May cause long lasting harmful effects to aquatic life.

12.2 Persistence and Degradability

No data available

Decamethylcyclopentasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 0.14%

Exposure Time: 28 d

Method: OECD Test Guideline 310

Dodecamethyl cyclohexasiloxane

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 4.5%

Exposure Time: 28 d

Method: OECD Test Guideline 301B

12.3 Bioaccumulative potential

Decamethylcyclopentasiloxane

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

Partition coefficient: n-octanol/water (log pow): 5.2 Measured

Bioconcentration factor (BCF): 2,010 Fish Estimated.

Dodecamethyl cyclohexasiloxane

Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or Log Pow greater than 7).

Partition coefficient: n-octanol/water (log pow): 8.87

12.4 Mobility in soil

Decamethylcyclopentasiloxane

Partition coefficient (Koc): >5000 Estimated

12.5 Results of PBT and vPvB assessment

Decamethylcyclopentasiloxane

Decamethylcyclopentasiloxane (D5) meets the current REACH Annex XIII criteria for vPvB. However, D5 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D5 is not biomagnifying in aquatic and terrestrial food webs. D5 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D5 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms. Based on an

independent scientific panel of experts, the Canadian Minister of the Environment has concluded that “d5 is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity, or that constitute or may constitute a danger to the environment on which life depends”.

Dodecamethyl cyclohexasiloxane

Dodecamethyl cyclohexasiloxane (D6) meets the current REACH Annex XIII criteria for vPvB. However, D6 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D6 is not biomagnifying in aquatic and terrestrial food webs. D6 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D6 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

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.

Decamethylcyclopentasiloxane

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.

Dodecamethyl cyclohexasiloxane

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

Decamethylcyclopentasiloxane

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

Dodecamethyl cyclohexasiloxane

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

Organic polysilazae compound

Discharge into the environment must be avoided

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.

14 Transport information

UN Number

Not applicable

UN Proper Shipping Name

Not applicable

Transport hazard class(es)

Not applicable

Packing group, if applicable

Not applicable

Environmental hazards

Not applicable

Special precautions for user

Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

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. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15 Regulatory information

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

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 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)	:	See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction Organic Polysilazane Compound Number on list: 3
REACH – Restrictions on the manufacture, placing on The market and use of certain dangerous substances, Preparations and articles (Annex XVII)	:	See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction Organic Polysilazane Compound Number on list: 40
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: Decamethylcyclopentasiloxane (Number on list: 70)

Authorisation status under REACH:

The following substance/s contained in this product might be or is/are subject to authorisation in accordance with REACH:

CAS-No: 541-02-6

Name: Decamethylcyclopentasiloxane

Authorisation status: Listed in the Candidate List of Substances of Very High Concern for Authorisation

Authorisation Number: Not available

Sunset date: Not available

Exempted (categories of) Uses: Not available

CAS-No: 540-97-6

Name: Dodecamethyl cyclohexasiloxane

Authorisation status: Listed in the Candidate List of Substances of Very High Concern for Authorisation

Authorisation Number: Not available

Sunset date: Not available

Exempted (categories of) Uses: Not available

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: Not applicable

15.2 Chemical safety assessment

No chemical safety assessment has been carried out.

16 Other information**Full text of H-phrases and P-phrases referred to in sections 2 and 3****Hazard Statements:**

H225: Highly flammable liquid and vapour

H226: Flammable Liquid & Vapour

H336: May cause drowsiness or dizziness

H372: Causes damage to organs through prolonged or repeated exposure

H304: May be fatal if swallowed and enters airways

H261: In contact with water releases flammable gases

H302: Harmful if swallowed

H314: Causes severe skin burns and eye damage

H317: May cause an allergic skin reaction

H318: Causes serious eye damage

H411: Toxic to aquatic life with long lasting effects

H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302 + P352: IF ON SKIN: Wash with plenty of water

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313: Get medical advice / attention.

P403: Store in a well-ventilated place. Keep container tightly closed.

Full text of other abbreviations

AND – 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 – American Society for the Testing of Materials; bw – Body weight; CLP – Classification labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR – Carcinogen, Mutagen or Reproductive Toxicant; DIN – Standard of the German Institute for Standardisation; DSL – Domestic Substances List (Canada); ECHA – European Chemicals Agency; EC-Number – European Community number; ECx – Concentration associated with x% response; ELx – Loading rate associated with x% response; EmS – Emergency Schedule; ENCS – Existing and New Chemical Substances (Japan); ErCx – Concentration associated with x% growth rate response; GHS – Globally Harmonised 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 Organisation; IECSC – Inventory of Existing Chemical Substances in China; IMDG – International Maritime Dangerous Goods; IMO – International Maritime Organisation; ISHL – Industrial Safety and Health Law (Japan); ISO – International Organisation for Standardisation; KECI – Korea Existing Chemicals Inventory; LC50 – Lethal Concentration to 50% at 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 – Organisation 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.

Disclaimer

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

This safety data sheet only contains information relating to safety and does not replace any product information or product specification.

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