

SAFETY DATA SHEET

Singapore

Section 1. Identification

GHS product identifier

Repel-Silane ES, 500 ml

Catalogue Number

17133201



Other means of identification Not available.

Product type Liquid.

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

Identified uses

Analytical chemistry.
Laboratory chemicals
Scientific research and development

Uses advised against

Consumer use

Reason

-

Supplier

Cytiva
Amersham Place
Little Chalfont
Buckinghamshire
HP7 9NA United Kingdom
+44 1494 508000

Cytiva Singapore
25 Tuas South Street 1
Singapore 638034

Emergency telephone number (with hours of operation)

+65 6863 6704
(hours of operation: 8.30 pm - 5.30 pm)

Section 2. Hazards identification

Classification of the substance or mixture FLAMMABLE LIQUIDS - Category 3
TOXIC TO REPRODUCTION - Category 2

GHS label elements, including precautionary statements

Hazard pictograms



Signal word

Warning

Hazard statements

Flammable liquid and vapor.
Suspected of damaging fertility or the unborn child.

Precautionary statements

Prevention

Obtain special instructions before use. Wear protective gloves, protective clothing, eye protection, face protection, or hearing protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response

IF exposed or concerned: Get medical advice or attention.

Storage

Not applicable.

Disposal

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification

None known.



Section 3. Composition/information on ingredients

Substance/mixture	Mixture		
Other means of identification	Not available.		
Chemical formula	Not applicable.		
Ingredient name	%	Identifiers	
octamethylcyclotetrasiloxane	98	CAS: 556-67-2 EC: 209-136-7	
dimethyldichlorosilane	2	CAS: 75-78-5 EC: 200-901-0	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
Skin contact	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
Ingestion	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)



Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use water jet.
Specific hazards arising from the chemical	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	Store between the following temperatures: 20 to 30°C (68 to 86°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.



Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits	
Ingredient name	Exposure limits
dimethyldichlorosilane	Workplace Safety and Health Act (Singapore, 1/2025) [Silicon] PEL (long term) 8 hours: 10 mg/m³.
Biological exposure indices	
No exposure indices known.	
Appropriate engineering controls	Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Individual protection measures	
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
Skin protection	
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	Liquid.
Color	Colorless.
Odor	Not available.
Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flash point	Closed cup: 56°C (132.8°F)
Burning time	Not applicable.
Burning rate	Not applicable.
Evaporation rate	Not available.
Flammability	Not available.
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method

	dimethyldichlorosilane	109.70432	14.6	EU A.4	381.01739	50.8	EU A.4
	octamethylcyclotetrasiloxane	0.99008	0.13				
Relative vapor density	Not available.						
Relative density	Not available.						
Solubility(ies)							
	Media	Result					
	cold water	Easily soluble					
	hot water	Easily soluble					
Solubility in water	Not available.						
Partition coefficient: n-octanol/ water	Not applicable.						
Auto-ignition temperature	Not available.						
	Ingredient name	°C	°F	Method			
	octamethylcyclotetrasiloxane	384 to 387	723.2 to 728.6	ASTM E 659			
	dimethyldichlorosilane	425	797	DIN 51794			
Decomposition temperature	Not available.						
SADT	Not available.						
Viscosity	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.						
Flow time (ISO 2431)	Not available.						
<u>Particle characteristics</u>							
Median particle size	Not applicable.						

Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
SADT	Not available.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name
octamethylcyclotetrasiloxane

Result
Rat - Inhalation - LC50 Vapor
36 g/m³ [4 hours]
Toxic effects: Behavioral - Excitement Lung, Thorax, or Respiration -
Dyspnea Other - Hair
Rat - Inhalation - LC50 Gas.
930 ppm [4 hours]

dimethyldichlorosilane

Conclusion/Summary [Product] Not available.

Skin corrosion/irritation

Product/ingredient name
dimethyldichlorosilane

Result
Rabbit - Skin - Moderate irritant
Duration of treatment/exposure: 24 hours
Amount/concentration applied: 20 mg

Conclusion/Summary [Product] Not available.

Serious eye damage/eye irritation

Product/ingredient name
dimethyldichlorosilane

Result
Rabbit - Eyes - Severe irritant
Duration of treatment/exposure: 24 hours
Amount/concentration applied: 5 mg

Conclusion/Summary [Product] Not available.



Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] Not available.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary [Product] Not available.

Respiratory

Conclusion/Summary [Product] Not available.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product] Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
dimethyldichlorosilane	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Ingestion	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Inhalation	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
Skin contact	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

Ingestion	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
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Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Reproductive toxicity	Suspected of damaging fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Repel-Silane ES, 500 ml	N/A	N/A	46500.0	N/A	N/A
octamethylcyclotetrasiloxane	N/A	N/A	N/A	36	N/A
dimethyldichlorosilane	N/A	N/A	930	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result
octamethylcyclotetrasiloxane	Chronic - NOEC - Fresh water Fish - Rainbow trout,donaldson trout - <i>Oncorhynchus mykiss</i> - Egg Age: 2 hours 4.4 µg/l [90 days] Effect: Multiple Chronic - NOEC - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> Age: <24 hours 7.9 µg/l [21 days] Effect: Mortality Chronic - NOEC STDMETH Algae - Green algae - <i>Selenastrum capricornutum</i> 1 to 29 µg/l [96 hours] Effect: Population

Conclusion/Summary [Product] Not available.

Persistence/degradability

Not available.

Conclusion/Summary [Product] Not available.

Ingredient name	Conclusion/Summary
dimethyldichlorosilane	Decomposes in water.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
octamethylcyclotetrasiloxane	6.488	13400 [EPA OTS 797.1520]	High
dimethyldichlorosilane	-0.41	-	Low

Mobility in soil






Soil/Water partition coefficient	Not available.
Other adverse effects	No known significant effects or critical hazards.





Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	UN	IMDG	IATA
UN number	UN1993	UN1993	UN1993
UN proper shipping name	FLAMMABLE LIQUIDS, N.O.S. (octamethylcyclotetrasiloxane, dimethyldichlorosilane)	FLAMMABLE LIQUIDS, N.O.S. (octamethylcyclotetrasiloxane, dimethyldichlorosilane)	FLAMMABLE LIQUIDS, N.O.S. (octamethylcyclotetrasiloxane, dimethyldichlorosilane)
Transport hazard class(es)	3 	3 	3 
Packing group	III	III	III
Environmental hazards	No.	No.	No.
Additional information	-	<u>Emergency schedules</u> F-E, S-E	The environmentally hazardous substance mark may appear if required by other transportation regulations.

	ADR/RID	ADN
UN number	UN1993	UN1993
UN proper shipping name	FLAMMABLE LIQUIDS, N.O.S. (octamethylcyclotetrasiloxane, dimethyldichlorosilane)	FLAMMABLE LIQUIDS, N.O.S. (octamethylcyclotetrasiloxane, dimethyldichlorosilane)
Transport hazard class(es)	3  	3  
Packing group	III	III
Environmental hazards	Yes.	Yes.
Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. <u>Hazard identification number</u> 30 <u>Tunnel code</u> (D/E)	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.



Transport in bulk according to IMO instruments Not available.

Section 15. Regulatory information

Singapore - hazardous chemicals under government control

None.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

United States	All components are active or exempted.
Canada inventory	All components are listed or exempted.
China	All components are listed or exempted.
Japan	Japan inventory (CSCL): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.

Section 16. Other information

History

Date of printing	10 February 2026
Date of issue/Date of revision	10 February 2026
Date of previous issue	02 November 2023.
Version	13
	sds_author@cytiva.com

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
TOXIC TO REPRODUCTION - Category 2	Calculation method

References Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

