SAFETY DATA SHEET

SPECIALTY ELECTRONIC MATERIALS UK LIMITED

Safety Data Sheet according to Regulation (EC) No 1907/2006 - Annex II

Product name: FROTH-PAK™ Mini HC Polyol

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

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

1.1 Product identifier
Product name: FROTH-PAK™ Mini HC Polyol

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Component(s) for the manufacture of urethane polymers.

1.3 Details of the supplier of the safety data sheet
COMPANY IDENTIFICATION
SPECIALTY ELECTRONIC MATERIALS UK
LIMITED
KINGS COURT, LONDON ROAD
STEVENAGE
England
SG1 2NG
UNITED KINGDOM

Customer Information Number: 00800-3876-6838
SDSQuestion-EU@dupont.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +(44)-870-8200418
Local Emergency Contact: +(44)-870-8200418

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008:
Aerosols - Category 1 - H222, H229
Acute toxicity - Category 4 - Oral - H302
Eye irritation - Category 2 - H319
Skin sensitisation - Category 1 - H317

Reproductive toxicity - Category 1B - H360D
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

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

Hazard pictograms

Signal word: DANGER

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.

Precautionary statements

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

Contains Reaction products of phosphoryl trichloride and 2-methyloxirane; 2,2'-oxybisethanol; 2-Ethylhexanoic acid potassium salt; Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

2.3 Other hazards

Endocrine disrupting properties (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.

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.

PBT and vPvB assessment:
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

This product is a mixture.

Identification number	Component	Classification according to Regulation (EU) 1272/2008 (CLP)	specific concentration limit/ M-Factors/ Acute toxicity estimate	%
CASRN 1244733-77-4 **EC-No.** – **Index-No.** – **REACH No** 01-2119486772-26	Reaction products of phosphoryl trichloride and 2-methyloxirane	Acute Tox. 4 - H302	Oral ATE: 632 mg/kg Inhalation ATE: > 7 mg/l (dust/mist) Dermal ATE: > 2,000 mg/kg	> 15.0 - < 25.0 %
CASRN 111-46-6 **EC-No.** 203-872-2 **Index-No.** 603-140-00-6 **REACH No** 01-2119457857-21	2,2'-oxybisethanol	Acute Tox. 4 - H302	Oral ATE: 500 mg/kg Inhalation ATE: > 4.6 mg/l (dust/mist) Dermal ATE: 13,330 mg/kg	> 1.0 - < 10.0 %
CASRN 78-40-0 **EC-No.** 201-114-5 **Index-No.** 015-013-00-7 **REACH No** 01-2119492852-28	triethyl phosphate	Acute Tox. 4 - H302 Eye Irrit. 2 - H319	Oral ATE: 1,131 mg/kg Dermal ATE: > 21,400 mg/kg	> 1.0 - < 10.0 %
CASRN 3164-85-0 **EC-No.** 221-625-7 **Index-No.** 607-230-00-6 **REACH No** 01-2119980714-29	2-Ethylhexanoic acid potassium salt	Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Repr. 1B - H360Df	Oral ATE: 2,043 mg/kg Inhalation ATE: > 0.11 mg/l (dust/mist) Dermal ATE: > 2,000 mg/kg	> 1.0 - < 3.0 %
CASRN 75-28-5 **EC-No.** 200-857-2 **Index-No.** 601-004-00-0 **REACH No** –	isobutane	Flam. Gas 1 - H220 Press. Gas Compr. Gas - H280	Inhalation ATE: 260,200 mg/l (gas)	> 1.0 - < 10.0 %
CASRN	propane	Flam. Gas 1 - H220	Inhalation ATE: > 425000 ppm	> 1.0 - < 5.0 %

74-98-6 **EC-No.** 200-827-9 **Index-No.** 601-003-00-5 **REACH No** –		Press. Gas Compr. Gas - H280	(vapour)	
CASRN 115-10-6 **EC-No.** 204-065-8 **Index-No.** 603-019-00-8 **REACH No** –	dimethyl ether	Flam. Gas 1 - H220 Press. Gas Liquefied gas - H280	Inhalation ATE: 164000 ppm (gas)	> 1.0 - < 10.0 %
CASRN 68928-76-7 **EC-No.** 273-028-6 **Index-No.** – **REACH No** –	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	Oral ATE: 892 mg/kg	> 0.1 - < 1.0 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures
General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes.

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

Skin contact: Remove contaminated clothing immediately. Wash off with plenty of water. Burns must be treated by a physician. Suitable emergency safety shower facility should be available in work area. Call a physician if irritation develops or persists.

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. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Rinse mouth thoroughly with water. Consult a physician.

4.2 Most important symptoms and effects, both 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 any immediate medical attention and special treatment needed
Notes to physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen halides.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. This material contains a flammable blowing agent. Blowing agent vaporizes quickly at room temperature. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

5.3 Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Warning - flashback potential. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. Confined space entry procedures must be followed before entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Dirt. Sand. Sawdust. Collect in suitable and properly labeled containers. Wash the spill site with water. See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections: References to other sections, if applicable, have been provided in the previous sub-sections.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Wash thoroughly after handling. Use with adequate ventilation. Keep container closed. This material is hygroscopic in nature. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.
Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Advice on general occupational hygiene
Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities:
Storage stability
Storage Period: 18 Month

7.3 Specific end use(s): Information on specific end use(s) of this product may be provided in a technical data sheet/annex to the SDS (if available).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Component	Regulation	Type of listing	Value
2,2'-oxybisethanol	US WEEL	TWA	10 mg/m3
	GB EH40	TWA	101 mg/m3 23 ppm
	Further information: 2: Where no specific short-term exposure limit is listed, a figure		

	three times the long-term exposure should be used		
triethyl phosphate	US WEEL	TWA	7.45 mg/m3
isobutane	ACGIH	STEL	1,000 ppm
	Further information: EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; CNS impair: Central Nervous System impairment		
propane	ACGIH		See Further information
	Further information: See Appendix F: Minimal Oxygen Content; EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit.; asphyxia: Asphyxia; D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables		
dimethyl ether	US WEEL	TWA	1,000 ppm
	2000/39/EC	TWA	1,920 mg/m3 1,000 ppm
	Further information: Indicative		
	GB EH40	TWA	766 mg/m3 400 ppm
	GB EH40	STEL	958 mg/m3 500 ppm
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 cutaneous absorption		
	ACGIH	STEL	0.2 mg/m3 , Tin
	Further information: A4: Not classifiable as a human carcinogen; Skin: Danger of cutaneous absorption		
	GB EH40	TWA	0.1 mg/m3 , Tin
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
	GB EH40	STEL	0.2 mg/m3 , Tin
	Further information: Sk: Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		

Derived No Effect Level

2,2'-oxybisethanol

Workers

Acute systemic effects		***Acute local effects***		***Long-term systemic effects***		***Long-term local effects***	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	106 mg/kg bw/day	n.a.	n.a.	60 mg/m3

Consumers

Acute systemic effects			***Acute local effects***		***Long-term systemic effects***			***Long-term local effects***	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	53 mg/kg bw/day	n.a.	n.a.	n.a.	12 mg/m3

dimethyl ether

Workers

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

n.a.	n.a.	n.a.	n.a.	n.a.	1894 mg/m3	n.a.	n.a.

Consumers

Acute systemic effects			*Acute local effects*		*Long-term systemic effects*			*Long-term local effects*	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	471 mg/m3	n.a.	n.a.	n.a.

Predicted No Effect Concentration

2,2'-oxybisethanol

Compartment	**PNEC**
Fresh water	10 mg/l
Marine water	1 mg/l
Intermittent use/release	10 mg/l
Sewage treatment plant	199.5 mg/l
Fresh water sediment	20.9 mg/kg
Soil	1.53 mg/kg
Marine sediment	2.09 mg/kg

dimethyl ether

Compartment	**PNEC**
Fresh water	0.155 mg/l
Marine water	0.016 mg/l
Intermittent use/release	1.549 mg/l
Sewage treatment plant	160 mg/l
Fresh water sediment	0.681 mg/kg
Marine sediment	0.069 mg/kg
Soil	0.045 mg/kg

8.2 Exposure controls

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

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Examples of acceptable glove barrier materials include: Viton. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a

glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.
Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	aerosol
	Form Foam
Colour	Colorless
Odour	characteristic
	Odour Threshold No test data available
Melting point/freezing point	Freezing point: No test data available
	Melting point/range: No test data available
Boiling point or initial boiling point and boiling range	Boiling point/boiling range: No test data available
Flammability	**Gases/Solids** Extremely flammable aerosol.

	Liquids No data available
Lower explosion limit and upper explosion limit / flammability limit	**Lower explosion limit** / **Lower flammability limit** Not applicable
	Upper explosion limit / **Upper flammability limit** Not applicable
Flash point	No test data available
Auto-ignition temperature	No test data available
Decomposition temperature	**Thermal decomposition** No test data available
pH	Not applicable
Viscosity	**Viscosity, kinematic** 1 mm2/s
Solubility(ies)	**Water solubility** partly miscible
Partition coefficient: n-octanol/water	No data available
Vapour pressure	Container is under pressure.
Density and / or relative density	**Relative Density (water = 1)** No test data available
Relative vapour density	Not applicable to liquids
Particle characteristics	Not applicable

9.2 Other information

Oxidizing properties	no oxidising properties
Aerosols	Extremely flammable aerosol.
Substances and mixtures, which in contact with water, emit flammable gases	The substance or mixture does not emit flammable gases in contact with water.

Evaporation rate	No test data available
Molecular weight	No test data available

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

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available

10.2 Chemical stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: Will not occur by itself.

10.4 Conditions to avoid: Product can oxidize at elevated temperatures. This material contains a flammable blowing agent. Elevated temperatures can cause pressure buildup in closed containers due to the release of blowing agents. Generation of gas during decomposition can cause pressure in closed systems.

10.5 Incompatible materials: Avoid contact with oxidizing materials. Avoid contact with: Strong acids. Strong bases. Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon dioxide. Alcohols. Ethers. Hydrocarbons. Hydrogen halides. Ketones. Polymer fragments.

SECTION 11: TOXICOLOGICAL INFORMATION

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

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

Acute toxicity

Acute toxicity (Acute oral toxicity)
Acute toxicity, Category 4
H302: Harmful if swallowed.
Classification procedure: Calculation method

Acute toxicity estimate, 1,828 mg/kg Calculation method

Acute toxicity (Acute dermal toxicity)
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Acute toxicity (Acute inhalation toxicity)
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Skin corrosion/irritation
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Eye irritation, Category 2
H319: Causes serious eye irritation.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

Respiratory or skin sensitisation
Skin sensitisation, Category 1
H317: May cause an allergic skin reaction.
Classification procedure: Calculation method

Product test data not available. Refer to component data.

Germ cell mutagenicity
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Carcinogenicity
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Reproductive toxicity
Reproductive toxicity, Category 1B
H360D: May damage the unborn child.
Classification procedure: Calculation method

Toxicity to reproduction assessment :
Product test data not available. Refer to component data.

Assessment Teratogenicity:
Product test data not available. Refer to component data.

STOT - single exposure
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

STOT - repeated exposure
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

Aspiration Hazard
Not classified
Not classified due to lack of data. / Not classified due to data which are conclusive although insufficient for classification.

Product test data not available. Refer to component data.

COMPONENTS INFLUENCING TOXICOLOGY:

Reaction products of phosphoryl trichloride and 2-methyloxirane

Acute toxicity (Acute oral toxicity)
LD50, Rat, 632 mg/kg EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)

Acute toxicity (Acute dermal toxicity)
LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, dust/mist, > 7 mg/l OECD Test Guideline 403

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause lacrimation (tears).
Essentially nonirritating to eyes.

Respiratory or skin sensitisation
Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant information found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were negative.

Carcinogenicity
No data available.

Reproductive toxicity
Toxicity to reproduction assessment :
In animal studies, did not interfere with reproduction.

Assessment Teratogenicity:
Did not cause birth defects in laboratory animals.

STOT - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

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

2,2'-oxybisethanol

Acute toxicity (Acute oral toxicity)
In humans, expected to be moderately toxic if swallowed even though oral toxicity was low when tested in animals. Ingestion of quantities (approximately 65 mL (2 oz.) for diethylene glycol or 100 mL (3 oz.) for ethylene glycol) has caused death in humans. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure. LD50, Rat, male, 19,600 mg/kg

Lethal Dose, Human, adult, 65 ml Estimated.

Acute toxicity estimate, 500 mg/kg Acute toxicity estimate according to Regulation (EC) No. 1272/2008

Acute toxicity (Acute dermal toxicity)
LD50, Rabbit, 13,330 mg/kg

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, dust/mist, > 4.6 mg/l The LC50 value is greater than the Maximum Attainable Concentration. No deaths occurred at this concentration.

Skin corrosion/irritation
Prolonged contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Respiratory or skin sensitisation
Did not cause allergic skin reactions when tested in humans.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Carcinogenicity
Diethylene glycol has been tested for carcinogenicity in animal studies and is not believed to pose a carcinogenic risk to man.

Reproductive toxicity
Toxicity to reproduction assessment :
Diethylene glycol did not interfere with reproduction in animal studies except at very high doses.

Assessment Teratogenicity:
Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals. Other animal studies have not reproduced birth defects even at much higher doses that caused severe maternal toxicity.

STOT - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Aspiration Hazard
No aspiration toxicity classification

triethyl phosphate

Acute toxicity (Acute oral toxicity)
LD50, Rat, 1,131 mg/kg

Acute toxicity (Acute dermal toxicity)
LD50, Guinea pig, > 21,400 mg/kg

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause moderate eye irritation.
May cause slight corneal injury.

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

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were predominantly negative.

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Assessment Teratogenicity:
No relevant data found.

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

STOT - repeated exposure
Triethyl phosphate is considered to be a weak cholinesterase inhibitor.
Excessive exposure may produce organophosphate type cholinesterase inhibition.
Signs and symptoms of excessive exposure may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions.

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

2-Ethylhexanoic acid potassium salt

Acute toxicity (Acute oral toxicity)
Information given is based on data obtained from similar substances. LC50, Rat, 2,043 mg/kg OECD Test Guideline 401

Acute toxicity (Acute dermal toxicity)
Information given is based on data obtained from similar substances. LD50, Rabbit, > 2,000 mg/kg OECD Test Guideline 402

Acute toxicity (Acute inhalation toxicity)
An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration. LC0, Rat, 4 Hour, dust/mist, > 0.11 mg/l OECD Test Guideline 403

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

Serious eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Respiratory or skin sensitisation
Did not cause allergic skin reactions when tested in guinea pigs.
Information given is based on data obtained from similar substances.

No data available

Germ cell mutagenicity
Animal genetic toxicity studies were negative. In vitro genetic toxicity studies were negative.
Information given is based on data obtained from similar substances.

Carcinogenicity
No data available

Reproductive toxicity
Toxicity to reproduction assessment :
In animal studies, has been shown to interfere with fertility. Information given is based on data obtained from similar substances.

Assessment Teratogenicity:
Has caused birth defects in laboratory animals. Information given is based on data obtained from similar substances.

STOT - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.
Information given is based on data obtained from similar substances.

Aspiration Hazard
No aspiration toxicity classification

isobutane

Acute toxicity (Acute oral toxicity)
Single dose oral LD50 has not been determined.

Acute toxicity (Acute dermal toxicity)
The dermal LD50 has not been determined.

Acute toxicity (Acute inhalation toxicity)
LC50, Mouse, 4 Hour, gas, 260,200 mg/l

Skin corrosion/irritation
Liquid may cause frostbite upon skin contact.
No hazard from gas.

Serious eye damage/eye irritation
Liquid may cause frostbite.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Respiratory or skin sensitisation
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative.

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
No relevant data found.

Assessment Teratogenicity:
No relevant data found.

STOT - single exposure
May cause drowsiness or dizziness.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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

propane

Acute toxicity (Acute oral toxicity)
Single dose oral LD50 has not been determined.

Acute toxicity (Acute dermal toxicity)
The dermal LD50 has not been determined.

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, male and female, 4 Hour, vapour, > 425000 ppm

Skin corrosion/irritation
No hazard from gas.
Liquid may cause frostbite upon skin contact.
Effects may be delayed.

Serious eye damage/eye irritation
Essentially nonirritating to eyes.
Liquid may cause frostbite.

Respiratory or skin sensitisation
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative.

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Assessment Teratogenicity:
Screening studies suggest that this material does not affect fetal development.

STOT - single exposure
Available data are inadequate to determine single exposure specific target organ toxicity.

STOT - repeated exposure
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

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

dimethyl ether

Acute toxicity (Acute oral toxicity)
Single dose oral LD50 has not been determined.

Acute toxicity (Acute dermal toxicity)
The dermal LD50 has not been determined.

Acute toxicity (Acute inhalation toxicity)
LC50, Rat, 4 Hour, gas, 164000 ppm

Skin corrosion/irritation
Liquid may cause frostbite upon skin contact.
Prolonged or repeated exposure may cause defatting of the skin leading to drying or flaking of skin.

Serious eye damage/eye irritation
Liquid may cause frostbite.

Respiratory or skin sensitisation
No relevant information found.

For respiratory sensitization:
No relevant information found.

Germ cell mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Carcinogenicity
Did not cause cancer in laboratory animals.

Reproductive toxicity
Toxicity to reproduction assessment :

No relevant data found.

Assessment Teratogenicity:
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

STOT - single exposure
Available data are inadequate to determine single exposure specific target organ toxicity.

STOT - repeated exposure
In animals, effects have been reported on the following organs:
Kidney.
Liver.

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

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

Acute toxicity (Acute oral toxicity)
LD50, Rat, 892 mg/kg

Acute toxicity (Acute dermal toxicity)
The dermal LD50 has not been determined.

Acute toxicity (Acute inhalation toxicity)
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.

Respiratory or skin sensitisation
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity
Not mutagenic in Ames Test

Carcinogenicity
No relevant data found.

Reproductive toxicity
Toxicity to reproduction assessment :
No relevant data found.

Assessment Teratogenicity:
No relevant data found.

STOT - single exposure
Available data are inadequate to determine single exposure specific target organ toxicity.

STOT - repeated exposure
No relevant information found.

Aspiration Hazard
No aspiration toxicity classification

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.

Further information

No data available

SECTION 12: ECOLOGICAL INFORMATION

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

12.1 Toxicity

Reaction products of phosphoryl trichloride and 2-methyloxirane

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (10 < LC50/EC50/IC50/LL50/EL50 <= 100 mg/L and NOEC > 1mg/l in the most sensitive species).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 51 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 131 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 82 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 13 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 32 mg/l

2,2'-oxybisethanol

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 75,200 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 24 Hour, > 10,000 mg/l

Acute toxicity to algae/aquatic plants
Based on data from similar materials
EC50, Selenastrum capricornutum (green algae), 96 Hour, 6,500 - 13,000 mg/l

Toxicity to bacteria
EC50, activated sludge, 3 Hour, > 1,000 mg/l, OECD 209 Test

Chronic toxicity to fish
Based on data from similar materials
NOEC, Pimephales promelas (fathead minnow), 7 d, 15,380 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, > 15,000 mg/l

triethyl phosphate

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
LC50, Leuciscus idus (Golden orfe), static test, 48 Hour, 2,140 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 350 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
EC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate inhibition, 900 mg/l, OECD Test Guideline 201

Toxicity to bacteria
EC50, activated sludge, Respiration inhibition, 30 min, > 2,985 mg/l, OECD 209 Test

2-Ethylhexanoic acid potassium salt

Acute toxicity to fish
Information given is based on data obtained from similar substances.
LC50, Oryzias latipes (Orange-red killifish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
Information given is based on data obtained from similar substances.
EC50, Daphnia magna (Water flea), 48 Hour, 85.4 mg/l

Acute toxicity to algae/aquatic plants
Information given is based on data obtained from similar substances.
EC50, Desmodesmus subspicatus (green algae), 96 Hour, 49.3 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 25 mg/l

isobutane

Acute toxicity to fish
No relevant data found.

propane

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms.

dimethyl ether

Acute toxicity to fish
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, > 4,000 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), 48 Hour, > 4,000 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria
EC10, Pseudomonas putida, > 1,600 mg/l

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
Acute toxicity to aquatic invertebrates
Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).
EC50, Daphnia magna (Water flea), 48 Hour, 39 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 7.6 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1.2 mg/l, OECD Test Guideline 201

Toxicity to bacteria
For similar material(s):
EC50, Bacteria, 3 Hour, Respiration rates., 14 mg/l

12.2 Persistence and degradability

Reaction products of phosphoryl trichloride and 2-methyloxirane
Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

2,2'-oxybisethanol
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 90 - 100 %
Exposure time: 20 d
Method: OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable

Biodegradation: 82 - 98 %
Exposure time: 28 d
Method: OECD Test Guideline 302C or Equivalent

triethyl phosphate

Biodegradability: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Not applicable
Biodegradation: > 90 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent

2-Ethylhexanoic acid potassium salt

Biodegradability: Readily biodegradable. Information given is based on data obtained from similar substances.

Biodegradation: 99 %
Exposure time: 28 d

isobutane

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).

propane

Biodegradability: No relevant data found.

dimethyl ether

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301A or Equivalent

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

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

12.3 Bioaccumulative potential

Reaction products of phosphoryl trichloride and 2-methyloxirane

Bioaccumulation: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water(log Pow): 2.68 at 30 °C

2,2'-oxybisethanol

Bioaccumulation: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water(log Pow): -1.98 at 20 °C
Bioconcentration factor (BCF): 100 Fish Measured

triethyl phosphate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.80 Measured

2-Ethylhexanoic acid potassium salt

Bioaccumulation: Bioaccumulation is unlikely. Based on information for a similar material: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

isobutane

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.76 Measured

propane

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.36 Measured

dimethyl ether

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.10 Measured

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

Partition coefficient: n-octanol/water(log Pow): 5.503

12.4 Mobility in soil

2,2'-oxybisethanol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): < 1 Estimated.

triethyl phosphate

Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Partition coefficient (Koc): 48 Estimated.

2-Ethylhexanoic acid potassium salt

Based on information for a similar material:
Potential for mobility in soil is very high (Koc between 0 and 50).

isobutane

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 35 Estimated.

propane

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 24 - 460 Estimated.

dimethyl ether

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 1.29 - 14 Estimated.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
No relevant data found.

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Reaction products of phosphoryl trichloride and 2-methyloxirane
This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

2,2'-oxybisethanol
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

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

2-Ethylhexanoic acid potassium salt
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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

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

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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.

12.7 Other adverse effects

Product contains no ozone-depleting components.

Reaction products of phosphoryl trichloride and 2-methyloxirane
No relevant data found.

2,2'-oxybisethanol
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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

2-Ethylhexanoic acid potassium salt
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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

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

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

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

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

SECTION 14: TRANSPORT INFORMATION

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

14.1	**UN number or ID number**	UN 1950
14.2	**UN proper shipping name**	AEROSOLS
14.3	**Transport hazard class(es)**	2.1
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered environmentally hazardous based on available data.
14.6	**Special precautions for user**	No data available.

Classification for SEA transport (IMO-IMDG):

14.1	**UN number or ID number**	UN 1950
14.2	**UN proper shipping name**	AEROSOLS
14.3	**Transport hazard class(es)**	2.1

14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not considered as marine pollutant based on available data.
14.6	**Special precautions for user**	EmS: F-D, S-U
14.7	**Maritime transport in bulk according to IMO instruments**	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

14.1	**UN number or ID number**	UN 1950
14.2	**UN proper shipping name**	Aerosols, flammable
14.3	**Transport hazard class(es)**	2.1
14.4	**Packing group**	Not applicable
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

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

SECTION 15: REGULATORY INFORMATION

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

Restrictions on the manufacture, placing on the market and use:
The following substance/s contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product have to comply with the restrictions placed upon it by the aforementioned provision.

CAS-No.: 68928-76-7	Name: Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

Restriction status: listed in REACH Annex XVII
Restricted uses: See Annex XVII to Regulation (EC) no 1907/2006 for Conditions of restriction
Number on the list: 20

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: FLAMMABLE AEROSOLS
Number in Regulation: P3a
150 t

500 t
Listed in Regulation: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)
Number in Regulation: 34
2,500 t
25,000 t

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

15.2 Chemical safety assessment

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

SECTION 16: OTHER INFORMATION

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

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008
Aerosol - 1 - H222 - Based on product data or assessment
Acute Tox. - 4 - H302 - Calculation method
Eye Irrit. - 2 - H319 - Calculation method
Skin Sens. - 1 - H317 - Calculation method
Repr. - 1B - H360D - Calculation method

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

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)

GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short-term exposure limit (15-minute reference period)
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)
Acute Tox.	Acute toxicity
Aquatic Chronic	Long-term (chronic) aquatic hazard
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Flam. Gas	Flammable gases
Press. Gas	Gases under pressure
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation

Full text of other abbreviations
ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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

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