SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: REACH Regulation (EC) No 1907/2006, as retained in UK law by (SI 2019/758 as amended)

EVO-STIK FIRE RETARDANT FOAM
Supercedes date 22-Feb-2023

Revision date 24-Jul-2024
Revision Number 2

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

1.1. Product identifier

Product Name EVO-STIK FIRE RETARDANT FOAM

Pure substance/mixture Mixture

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

Recommended use Building and construction work

Uses advised against None known

1.3. Details of the supplier of the safety data sheet

Company Name
Bostik Limited
Common Rd
ST16 3EH
Stafford UK
Tel: +44 (1785) 27 26 25
Fax: +44 (1785) 25 72 36

E-mail address SDS.box-EU@bostik.com

1.4. Emergency telephone number

United Kingdom Bostik: +44 (1785) 272650 (9am to 5pm Mon-Fri)
NHS: 111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP (SI 2020/1567 as amended)

Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 2 - (H319)
Respiratory sensitisation	Category 1 - (H334)
Skin sensitisation	Category 1 - (H317)
Carcinogenicity	Category 2 - (H351)
Specific target organ toxicity (single exposure)	Category 3 - (H335)
Category 3 Respiratory irritation	
Specific target organ toxicity - repeated exposure	Category 2 - (H373)
Aerosols	Category 1 - (H222, H229)

2.2. Label elements

Contains Diphenylmethane-diisocyanate, isomers and homologues; Reaction products of phosphoryl trichloride and 2-methyloxirane

Signal word
Danger

Hazard statements
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.
H222 - Extremely flammable aerosol.
H229 - Pressurised container: May burst if heated.

EU Specific Hazard Statements
EUH204 - Contains isocyanates. May produce an allergic reaction

Precautionary Statements - EU (§28, 1272/2008)
P101 - If medical advice is needed, have product container or label at hand
P102 - Keep out of reach of children
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
P260 - Do not breathe mist/vapours/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves and eye/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P405 - Store locked up
P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable
Special provisions concerning the labelling of certain mixtures
Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. As from 24 August 2023 adequate training is required before industrial or professional use.

Additional information
This product requires tactile warnings if supplied to the general public.

2.3. Other hazards

Pressurized container: Do not pierce or burn, even after use. During transportation by car the cans should stand upright in the cargo space. In case of insufficient ventilation and/or through use, the formation of a explosive/highly flammable mixture is possible. The mentioned hazards are valid for the non-reacted content of the can or of the fresh foam. When foaming the propellants are highly flammable.

PBT & vPvB
This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	EC No (EU Index No).	CAS No..	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	REACH registration number
Diphenylmethane-diisocyanate, isomers and homologues 40 - <80 %	618-498-9	9016-87-9	STOT SE 3 (H335) STOT RE 2 (H373) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Carc. 2 (H351) Acute Tox. 4 (H332)	STOT SE 3 :: C>=5% Skin Irrit. 2 :: C>=5% Eye Irrit. 2 :: C>=5% Resp. Sens. 1 :: C>=0.1%	-	-	[7]
Reaction products of phosphoryl trichloride and 2-methyloxirane 10 - <20 %	807-935-0	1244733-77-4	Acute Tox. 4 (H302) Carc. 2 (H351) Aquatic Chronic 3 (H412)	-	-	-	01-2119486772-26-XXXX
Isobutane 5 - <10 %	200-857-2 (601-004-00-0)	75-28-5	Flam. Gas 1 (H220) Press. Gas (H280)	-	-	-	01-2119485395-27-XXXX
Dimethyl ether 5 - <10 %	204-065-8 (603-019-00-8)	115-10-6	Flam. Gas 1 (H220) Press. Gas (H280)	-	-	-	01-2119472128-37-XXXX
Halogenated polyetherpolyol 1 - <2.5 %	-	68441-62-3	Eye Irrit. 2 (H319) Acute Tox. 4 (H302)	-	-	-	01-2119533103-55-XXXX
Propylene carbonate 0.1- <1 %	203-572-1 (607-194-00-1)	108-32-7	Eye Irrit. 2 (H319)	-	-	-	01-2119537232-48-XXXX
Butane 0.1 - <0.3 %	203-448-7 (601-004-00-0)	106-97-8	Flam. Gas 1 (H220) Press. Gas (H280)	-	-	-	01-2119474691-32-XXXX
Diethylene Glycol 0.1 - <0.3 %	203-872-2 (603-140-00-6)	111-46-6	Acute Tox. 4 (H302)	-	-	-	01-2119457857-21-XXXX
Diethylene glycol 0.1 - <0.3 %	203-872-2 (603-140-00-6)	111-46-6	Acute Tox. 4 (H302) STOT RE 2 (H373)	-	-	-	01-2119457857-21-XXXX

Full text of H- and EUH-phrases: see section 16

NOTE [7] - No registration number is given for this substance because it is a polymer exempted from registration according to the provisions of Article 2(9) of REACH. All monomers or other substances within the polymer are registered or exempt from registration

Acute Toxicity Estimate
If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	EC No (EU Index No)	CAS No.	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Diphenylmethane-diisocyanate, isomers and homologues	618-498-9	9016-87-9	-	-	1.5	-	-
Reaction products of phosphoryl trichloride and 2-methyloxirane	807-935-0	1244733-77-4	632	-	-	-	-
Isobutane	200-857-2 (601-004-00-0)	75-28-5	-	-	-	-	-
Dimethyl ether	204-065-8 (603-019-00-8)	115-10-6	-	-	-	-	-
Halogenated polyetherpolyol	-	68441-62-3	1337	-	-	-	-
Propylene carbonate	203-572-1 (607-194-00-1)	108-32-7	-	-	-	-	-
Butane	203-448-7 (601-004-00-0)	106-97-8	-	-	-	-	-
Diethylene Glycol	203-872-2 (603-140-00-6)	111-46-6	1120	-	-	-	-
Diethylene glycol	203-872-2 (603-140-00-6)	111-46-6	1120	-	4.6046	-	-

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

Notes
See section 16 for more information

Chemical name	Notes
Isobutane - 75-28-5	C,U
Dimethyl ether - 115-10-6	U
Butane - 106-97-8	C,U

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.

Inhalation Remove to fresh air. May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.

Skin contact May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes. Do not use solvents or thinners to dissolve the material.

Ingestion May produce an allergic reaction. Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. See section 8 for more information. Avoid breathing vapours or mists.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. Difficulty in breathing.
Effects of Exposure	May cause damage to organs through prolonged or repeated exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Note to doctors	May cause sensitisation in susceptible persons. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.
Unsuitable extinguishing media	Full water jet. DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated. Product is or contains a sensitiser. May cause sensitisation by inhalation. May cause sensitisation by skin contact.
Hazardous combustion products	Carbon oxides. Carbon monoxide. Carbon dioxide (CO2). Phosphorus oxides. Nitrogen oxides (NOx). Hydrogen cyanide. Isocyanates. Halogenated compounds.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid breathing vapours or mists.
Other information	Ventilate the area. Refer to protective measures listed in Sections 7 and 8.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Flood with water to complete polymerization and scrape off floor.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Use spark-proof tools and explosion-proof equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Keep in an area equipped with sprinklers. Do not puncture or incinerate cans. Contents under pressure. In case of rupture. Avoid breathing vapours or mists. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

General hygiene considerations Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Protect from sunlight. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store locked up. Keep out of the reach of children. Keep/store only in original container. Store in a dry place. Store in a closed container.

7.3. Specific end use(s)

Specific use(s)
Building and construction work.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

Other information Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	United Kingdom
Diphenylmethane-diisocyanate, isomers and homologues 9016-87-9	-	TWA: 0.02 mg/m³ STEL: 0.07 mg/m³ SEN; as -NCO
Dimethyl ether 115-10-6	TWA: 1000 ppm TWA: 1920 mg/m³	TWA: 400 ppm TWA: 766 mg/m³ STEL: 500 ppm STEL: 958 mg/m³
4,4'-Methylenediphenyl diisocyanate 101-68-8	TWA: 10 µg NCO / m³ (2.9 ppb) STEL: 20 µg NCO / m³ (5.8 ppb) Sk* +	TWA: 0.02 mg/m³ STEL: 0.07 mg/m³ Sen+
Butane 106-97-8	-	TWA: 600 ppm TWA: 1450 mg/m³ STEL: 750 ppm STEL: 1810 mg/m³
Diethylene Glycol 111-46-6	-	TWA: 23 ppm TWA: 101 mg/m³ STEL: 69 ppm STEL: 303 mg/m³
Diethylene glycol 111-46-6	-	TWA: 23 ppm TWA: 101 mg/m³ STEL: 69 ppm STEL: 303 mg/m³

Chemical name	European Union	Ireland	United Kingdom
Diphenylmethane-diisocyanate, isomers and homologues 9016-87-9	-	1 µmol/mol Creatinine (urine - urinary Diamine post task)	-
4,4'-Methylenediphenyl diisocyanate 101-68-8	-	1 µmol/mol Creatinine (urine - urinary Diamine post task)	-

Derived No Effect Level (DNEL) No information available

Derived No Effect Level (DNEL)			
Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Systemic health effects	Inhalation	8.2 mg/m³	
worker Short term Systemic health effects	Inhalation	22.6 mg/m³	
worker Long term Systemic health effects	Dermal	2.91 mg/kg bw/d	

Dimethyl ether (115-10-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Systemic health effects	Inhalation	1894 mg/m³	

Halogenated polyetherpolyol (68441-62-3)			
Type	Exposure route	Derived No Effect Level	Safety factor

		(DNEL)	
worker Long term Systemic health effects	Inhalation	6 mg/m³	
worker Long term Systemic health effects	Dermal	0.87 mg/kg bw/d	

Propylene carbonate (108-32-7)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Systemic health effects	Inhalation	70.53 mg/m³	
worker Long term Local health effects	Inhalation	20 mg/m³	
worker Long term Systemic health effects	Dermal	20 mg/kg bw/d	
worker Long term Local health effects	Dermal	10 mg/cm²	

Diethylene Glycol (111-46-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Systemic health effects	Inhalation	44 mg/m³	
worker Long term Local health effects	Inhalation	60 mg/m³	
worker Long term Systemic health effects	Dermal	43 mg/kg bw/d	

Diethylene glycol (111-46-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
worker Long term Systemic health effects	Inhalation	44 mg/m³	
worker Long term Local health effects	Inhalation	60 mg/m³	
worker Long term Systemic health effects	Dermal	4440 mg/kg bw/d	

Derived No Effect Level (DNEL)			
Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Long term Systemic health effects	Inhalation	1.45 mg/m³	
Consumer Short term	Inhalation	5.6 mg/m³	

Systemic health effects			
Consumer Long term Systemic health effects	Dermal	1.04 mg/kg bw/d	
Consumer Long term Systemic health effects	Oral	0.52 mg/kg bw/d	
Consumer Short term Systemic health effects	Oral	2 mg/kg bw/d	

Dimethyl ether (115-10-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Long term Systemic health effects	Inhalation	471 mg/m³	

Halogenated polyetherpolyol (68441-62-3)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Long term Systemic health effects	Inhalation	1.5 mg/m³	
Consumer Long term Systemic health effects	Dermal	0.435 mg/kg bw/d	

Propylene carbonate (108-32-7)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Long term Systemic health effects	Inhalation	17.4 mg/m³	
Consumer Long term Local health effects	Inhalation	10 mg/m³	
Consumer Long term Systemic health effects	Dermal	10 mg/kg bw/d	
Consumer Long term Systemic health effects	Oral	10 mg/kg bw/d	

Diethylene Glycol (111-46-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor
Consumer Long term Systemic health effects	Inhalation	12 mg/m³	
Consumer Long term Local health effects	Inhalation	12 mg/m³	
Consumer Long term Systemic health effects	Dermal	21 mg/kg	

Diethylene glycol (111-46-6)			
Type	Exposure route	Derived No Effect Level (DNEL)	Safety factor

Consumer Long term Systemic health effects	Inhalation	12 mg/m³	
Consumer Long term Local health effects	Inhalation	12 mg/m³	
Consumer Long term Systemic health effects	Dermal	21 mg/kg bw/d	
Consumer Long term Systemic health effects	Inhalation	12 mg/m³	
Consumer Long term Local health effects	Inhalation	12 mg/m³	
Consumer Long term Systemic health effects	Dermal	21 mg/kg bw/d	

Predicted No Effect Concentration (PNEC)

Predicted No Effect Concentration (PNEC)	
Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	0.32 mg/l
Marine water	0.032 mg/l
Sewage treatment plant	19.1 mg/l
Freshwater sediment	11.5 mg/kg dry weight
Marine sediment	1.15 mg/kg dry weight
Soil	0.34 mg/kg dry weight
Freshwater - intermittent	0.51 mg/l

Dimethyl ether (115-10-6)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	0.155 mg/l
Marine water	0.016 mg/l
Microorganisms in sewage treatment	160 mg/l
Freshwater sediment	0.681 mg/kg dry weight
Soil	0.45 mg/kg dry weight

Halogenated polyetherpolyol (68441-62-3)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	0.52 mg/l
Marine water	0.052 mg/l
Freshwater sediment	2.6 mg/kg dry weight
Marine sediment	0.26 mg/kg dry weight
Sewage treatment plant	1 mg/l
Soil	0.215 mg/kg dry weight

Propylene carbonate (108-32-7)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	0.9 mg/l
Marine water	0.09 mg/l
Soil	0.81 mg/kg dry weight
Sewage treatment plant	7400 mg/l

Diethylene Glycol (111-46-6)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	10 mg/l
Marine water	1 mg/l

Sewage treatment plant	199 mg/l
Freshwater sediment	20.9 mg/kg dry weight
Marine sediment	2.09 mg/kg dry weight
Soil	1.53 mg/kg dry weight
Freshwater - intermittent	10 mg/l

Diethylene glycol (111-46-6)	
Environmental compartment	Predicted No Effect Concentration (PNEC)
Freshwater	10 mg/l
Marine water	1 mg/l
Sewage treatment plant	199 mg/l
Freshwater sediment	20.9 mg/kg dry weight
Marine sediment	2.09 mg/kg dry weight
Soil	1.53 mg/kg dry weight
Freshwater - intermittent	10 mg/l

8.2. Exposure controls

Engineering controls Ensure adequate ventilation, especially in confined areas. Vapours/aerosols must be exhausted directly at the point of origin.

Personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles). Eye protection must conform to standard EN 166.

Hand protection Wear suitable gloves. Glove thickness > 0.7mm. Butyl rubber. Nitrile rubber. The breakthrough time for the mentioned glove material is in general greater than 480 min. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves must conform to standard EN 374

Skin and body protection Wear appropriate personal protective clothing to prevent skin contact.

Respiratory protection Ensure adequate respiratory protection during spray applications. In case of insufficient ventilation, wear suitable respiratory equipment.

Recommended filter type: Organic gases and vapours filter conforming to EN 14387. Wear a respirator conforming to EN 140 with Type A filter or better.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state Liquid
Appearance Aerosol Foam
Colour Yellow
Odour Slight. Characteristic.

Property	**Values**	**Remarks • Method**
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	Not applicable, Aerosol .	Not applicable, Aerosol
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	18.6	
Lower flammability or explosive limits	1.7	
Flash point	Not applicable, Aerosol .	Not applicable, Aerosol
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	Not applicable. Insoluble in water.
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	

Water solubility	Reacts with water.	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Vapour pressure	6 - 6.5	bar @ 23 °C
Relative density	No data available	None known
Bulk density	No data available	
Density	1.0332 g/cm³	
Relative vapour density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

9.2. Other information

Solid content (%)	No information available	
VOC content	166.67 g/L	European directive n°2010/75/UE

9.2.1. Information with regards to physical hazard classes
Not applicable

9.2.2. Other safety characteristics
No information available

Minimum Ignition Temperature (°C)	235

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No information available.

10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	Yes.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Heating causes rise in pressure with risk of bursting.

10.4. Conditions to avoid

Conditions to avoid Product cures with moisture. Heat, flames and sparks. Excessive heat. Protect from moisture. Keep away from open flames, hot surfaces and sources of ignition. Extremes of temperature and direct sunlight.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents. Water. Alcohols. Amines. Incompatible with oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products None under normal use conditions. Stable under recommended storage conditions.

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Product Information

Inhalation Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Specific test data for the substance or mixture is not available. May cause sensitisation in susceptible persons. (based on components). May cause irritation of respiratory tract. Harmful by inhalation.

Eye contact Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

Skin contact Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). May cause sensitisation by skin contact. Causes skin irritation.

Ingestion Specific test data for the substance or mixture is not available. May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Coughing and/ or wheezing. Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	3,533.90 mg/kg
ATEmix (dermal)	>2000 mg/kg
ATEmix (inhalation-gas)	>20000 ppm
ATEmix (inhalation-dust/mist)	3.14 mg/l
ATEmix (inhalation-vapour)	>20 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Diphenylmethane-diisocyanate, isomers and homologues	LD50 > 10000 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus)	1.5 mg/L (Rattus) 4 h
Reaction products of phosphoryl trichloride and 2-methyloxirane	LD50 > 500 - 2000 mg/kg (males); LD50 = 632 mg/kg (females)(Rattus)	LD50 >2000 mg/Kg (Rattus) (OECD 402)	LD50 >7 mg/L (4h)(Rattus) (OECD 403)
Isobutane	-	-	=658 mg/L (Rattus) 4 h
Dimethyl ether	-	-	=164000 ppm (Rattus) 4 h
Halogenated polyetherpolyol	LD50 = 1337 mg/Kg (Rattus) (OECD 401)	-	LC50 (4h) > 5.47 g/m³ (Rat)
Propylene carbonate	LD50 > 5000 mg/kg (Rattus) OECD 401	> 3000 mg/kg (Oryctolagus cuniculus)	-
Butane	-	-	=658 g/m³ (Rattus) 4 h
Diethylene Glycol	=1120 mg/kg bw (human)	= 11890 mg/kg (Oryctolagus cuniculus)	LC0 (4h)> 4600 mg/m³ (Rattus)
Diethylene glycol	=1120 mg/kg bw (human)	= 11890 mg/kg (Oryctolagus	>4600 mg/m³ (Rattus) 4 h

		cuniculus)	

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)					
Method	**Species**	**Exposure route**	**Effective dose**	**Exposure time**	**Results**
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit				Mild skin irritant

Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)					
Method	**Species**	**Exposure route**	**Effective dose**	**Exposure time**	**Results**
OECD 404	Rabbit	Dermal			Non-irritant

Halogenated polyetherpolyol (68441-62-3)					
Method	**Species**	**Exposure route**	**Effective dose**	**Exposure time**	**Results**
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal		96 hours	Non-irritant

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

Reaction products of phosphoryl trichloride and 2-methyloxirane (1244733-77-4)

Method	**Species**	**Exposure route**	**Effective dose**	**Exposure time**	**Results**
OECD 405	Rabbit	eye			Non-irritant

Halogenated polyetherpolyol (68441-62-3)

Method	**Species**	**Exposure route**	**Effective dose**	**Exposure time**	**Results**
OECD Test No. 405: Acute Eye Irritation/Corrosion	Rabbit				irritant

Respiratory or skin sensitisation May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. Suspected of causing cancer.

Component Information
Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	**Species**	**Results**
OECD Test No. 453: Combined Chronic Toxicity/Carcinogenicity Studies	Rat	Carcinogenic

Reproductive toxicity Based on available data, the classification criteria are not met.

STOT - single exposure May cause respiratory irritation.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

H373 - May cause damage to the following organs through prolonged or repeated exposure if inhaled: lungs;inhalation.

Aspiration hazard Based on available data, the classification criteria are not met.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea	M-Factor	M-Factor (long-term)
Diphenylmethane-diisocyanate, isomers and homologues 9016-87-9	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	CL50 (96h) >1000 mg/L Danio rerio	-	EC50 (24H) >1000 mg/L Daphnia magna		
Reaction products of phosphoryl trichloride and 2-methyloxirane 1244733-77-4	EC50 (72h) = 82 mg/L (Pseudokirchneriella subcapitata) OECD 201	LC50 (96h) = 51 mg/L (Pimephales promelas) Static	-	LC50 (48h) = 131 mg/L Daphnia magna		
Dimethyl ether 115-10-6	-	LC50: >4.1g/L (96h, Poecilia reticulata)	-	> 4400 mg/L (Daphnia) (NEN 6501)		
Halogenated polyetherpolyol 68441-62-3	ErC50 (96h) > 1000 mg/l (Pseudokirchneriella subcapitata) OECD 201	LC50: =560mg/L (96h, Poecilia reticulata)	-	EC50 (48h): 520 mg/l (Daphnia magna) OECD 202		
Propylene carbonate 108-32-7	ErC50 (72h): > 900mg/L (Desmodesmus subspicatus, OECD-201)	LC50 (96) h > 1000 mg/L (Cyprinus carpio, 67/548/EWG, Annex V, C.1.)	EC50 > 10000 mg/L 17 h	EC50 (48h): > 1000mg/L (Daphnia magna, OECD 202)		
Diethylene Glycol 111-46-6	-	LC50: =75200mg/L (96h, Pimephales promelas)	-	EC50: =84000mg/L (48h, Daphnia magna)		
Diethylene glycol 111-46-6	-	LC50: =75200mg/L (96h,	EC50 = 29228 mg/L 15 min	EC50: =84000mg/L (48h, Daphnia		

		Pimephales promelas)		magna)		

12.2. Persistence and degradability

Persistence and degradability No information available.

Diphenylmethane-diisocyanate, isomers and homologues (9016-87-9)

Method	Exposure time	Value	Results
OECD Test No. 302C: Inherent Biodegradability: Modified MITI Test (II)	28 days	0% biodegradation	Not readily biodegradable

Halogenated polyetherpolyol (68441-62-3)

Method	Exposure time	Value	Results
OECD Test No. 301D: Ready Biodegradability: Closed Bottle Test (TG 301 D)	28 days	16%	Not readily biodegradable

12.3. Bioaccumulative potential

Bioaccumulation

Component Information

Chemical name	Partition coefficient
Reaction products of phosphoryl trichloride and 2-methyloxirane	2.68
Isobutane	2.8
Dimethyl ether	-0.18
Halogenated polyetherpolyol	3.3
Propylene carbonate	-0.41
Butane	2.31
Diethylene Glycol	-1.98
Diethylene glycol	-1.98

12.4. Mobility in soil

Mobility in soil No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Reaction products of phosphoryl trichloride and 2-methyloxirane	The substance is not PBT / vPvB
Isobutane	The substance is not PBT / vPvB
Dimethyl ether	The substance is not PBT / vPvB
Halogenated polyetherpolyol	The substance is not PBT / vPvB
Propylene carbonate	The substance is not PBT / vPvB
Butane	The substance is not PBT / vPvB
Diethylene Glycol	The substance is not PBT / vPvB
Diethylene glycol	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products	Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
Waste codes / waste designations according to EWC	16 05 05 gases in pressure containers other than those mentioned in 16 05 04. Waste codes should be assigned by the user based on the application for which the product was used.
European Waste Catalogue	08 05 01* waste isocyanates 16 05 04* gases in pressure containers (including halons) containing dangerous substances 17 06 04 insulation materials other than those mentioned in 17 06 01 and 17 06 03
Other information	Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

Note: The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments made in non-bulk packages (see regulatory definition). The information shown here, may not always agree with the bill of lading shipping description for the material.

Land transport (ADR/RID)

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	Aerosols
14.3 Transport hazard class(es)	2
Labels	2.1
14.4 Packing group	Not regulated
Description	UN1950, Aerosols, 2, (D)
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	190, 327, 344, 625
Classification code	5F
Tunnel restriction code	(D)
Limited quantity (LQ)	1 L

IMDG

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	Aerosols
14.3 Transport hazard class(es)	2.1
14.4 Packing group	Not regulated
Description	UN1950, Aerosols, 2.1, (0°C c.c.)
14.5 Marine pollutant	NP
14.6 Special precautions for user	
Special Provisions	63,190, 277, 327, 344, 381, 959
Limited Quantity (LQ)	See SP277
EmS-No.	F-D, S-U

14.7 Maritime transport in bulk according to IMO instruments

Transport in bulk according to Annex II of MARPOL and the IBC Code Not applicable

Air transport (ICAO-TI / IATA-DGR)

14.1 UN number or ID number	UN1950
14.2 UN proper shipping name	Aerosols, flammable
14.3 Transport hazard class(es)	2.1
14.4 Packing group	Not regulated
Description	UN1950, Aerosols, flammable, 2.1
14.5 Environmental hazards	No
14.6 Special precautions for user	
Special Provisions	A145, A167, A802
Limited quantity (LQ)	30 kg G
ERG Code	10L

Section 15: REGULATORY INFORMATION

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Check whether measures in accordance with Directive 94/33/EC for the protection of young people at work must be taken.

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACh) Regulation (EC 1907/2006)

SVHC: Substances of Very High Concern for Authorisation:
This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59)

EU-REACH (1907/2006) - Annex XVII - Substances subject to Restriction
This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII).

Chemical name	CAS No.	Restricted substance per REACH Annex XVII
Diphenylmethane-diisocyanate, isomers and homologues	9016-87-9	56 74.
Diisocyantes	--	74

56 . If product supplied to the general public with substance ≥0.1%, then gloves must be provided with the product. **74** If product supplied to the industrial or professional users with total monomeric diisocyanates ≥ 0.1%, then its packaging must mention “As from 24 August 2023 adequate training is required before industrial or professional use”.

Substance subject to authorisation per REACH Annex XIV
This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

Export Notification requirements
This product does not contain substances which are regulated pursuant to Regulation (EC) No. 649/2012 of the European parliament and of the council concerning the export and import of dangerous chemicals above the level that triggers a labeling obligation under Regulation (EC) No 1272/2008. Therefore this product is not subject to prior informed consent notification.

Dangerous substance category per Seveso Directive (2012/18/EU)
P3a - FLAMMABLE AEROSOLS

Ozone-depleting substances (ODS) regulation (EC) 1005/2009
Not applicable

Persistent Organic Pollutants
Not applicable

REGULATION (EU) 2019/1148 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on the marketing and use of explosives precursors
Not applicable

National regulations

15.2. Chemical safety assessment

Chemical Safety Assessments have been carried out by the Reach registrants for substances registered at >10 tpa. No Chemical Safety Assessment has been carried out for this mixture

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3
H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure
H412 - Harmful to aquatic life with long lasting effects

Notes relating to the identification, classification and labelling of substances
Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers
Note U (Table 3): When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case. The following codes are assigned:
Press. Gas (Comp.)
Press. Gas (Liq.)
Press. Gas (Ref. Liq.)
Press. Gas (Diss.)
Aerosols shall not be classified as gases under pressure (See Annex I, Part 2, Section 2.3.2.1, Note 2)

Legend

TWA	TWA (time-weighted average)
STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value
Sk*	Skin designation
SVHC	Substance(s) of Very High Concern
PBT	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB	Very Persistent and very Bioaccumulative (vPvB) Chemicals
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
EWC	European Waste Catalogue
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG	International Maritime Dangerous Goods (IMDG)
IATA	International Air Transport Association (IATA)

RID	Regulations concerning the International Transport of Dangerous Goods by Rail

Key literature references and sources for data
No information available

Prepared By	Product Safety & Regulatory Affairs
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Indication of changes	
Revision note	Not applicable.
Training Advice	AS FROM 24 AUGUST 2023 ADEQUATE TRAINING IS REQUIRED BEFORE INDUSTRIAL OR PROFESSIONAL USE For further information, please contact: https://www.safeusediisocyanates.eu/
Further information	No information available

This SDS complies with the requirements of UK REACH Regulations SI 2019/758 (as amended)

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet