

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

**1.1 Product identifier:** Penosil Fire Rated Gunfoam B1 187 750ml UK

**Other means of identification:**

Non-applicable

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

Relevant uses: Foam

Uses advised against: All uses not specified in this section or in section 7.3

**1.3 Details of the supplier of the safety data sheet:**

Wolf Group OÜ  
Suur-Paala 10  
13619 Tallinn - Estonia  
Phone: +372 605 9300  
sds@wolf-group.com  
www.wolf-group.com

**1.4 Emergency telephone number:** 999; 111; 844 892 0111

## SECTION 2: HAZARDS IDENTIFICATION

**2.1 Classification of the substance or mixture:**

**GB CLP Regulation:**

Classification of this product has been carried out in accordance with GB CLP Regulation.

Aerosol 1: Pressurised container: May burst if heated., H229

Aerosol 1: Flammable aerosols, Category 1, H222

Carc. 2: Carcinogenicity, Category 2, H351

Eye Irrit. 2: Eye irritation, Category 2, H319

Resp. Sens. 1: Sensitisation, respiratory, Category 1, H334

Skin Irrit. 2: Skin irritation, Category 2, H315

Skin Sens. 1: Sensitisation, skin, Category 1, H317

STOT RE 2: Specific target organ toxicity, repeated exposure, Category 2, H373

STOT SE 3: Respiratory tract toxicity, single exposure, Category 3, H335

**2.2 Label elements:**

**GB CLP Regulation:**

Danger



**Hazard statements:**

Pressurised container: May burst if heated.

Extremely flammable aerosol.

Suspected of causing cancer.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Causes skin irritation.

May cause an allergic skin reaction.

May cause damage to organs through prolonged or repeated exposure.

May cause respiratory irritation.

**Precautionary statements:**

If medical advice is needed, have product container or label at hand.

Keep out of reach of children.

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.

Do not pierce or burn, even after use.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/face protection/protective clothing/respiratory protection/protective footwear.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.

Dispose of the contents and/or its container using the separate collection system in your municipality.

- CONTINUED ON NEXT PAGE -

## SECTION 2: HAZARDS IDENTIFICATION (continued)

### Supplementary information:

Contains isocyanates. May produce an allergic reaction.

### Substances that contribute to the classification

4,4'-methylenediphenyl diisocyanate, isomers and homologues

### Additional Labelling:

As from 24 August 2023 adequate training is required before industrial or professional use.

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.

### 2.3 Other hazards:

Product does not meet PBT/vPvB criteria

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substance:

Non-applicable

### 3.2 Mixture:

**Chemical description:** Mixture composed of organic substances

### Components:

In accordance with Annex II of The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020, the product contains:

Identification	Chemical name/Classification	Concentration
CAS: 9016-87-9	<b>4,4'-methylenediphenyl diisocyanate, isomers and homologues</b> Acute Tox. 4: H332; Carc. 2: H351; Eye Irrit. 2: H319; Resp. Sens. 1: H334; Skin Irrit. 2: H315; Skin Sens. 1: H317; STOT RE 2: H373; STOT SE 3: H335 - Danger	30 - <50 %
CAS: 1244733-77-4	<b>Reaction products of phosphoryl trichloride and 2-methyloxirane</b> Acute Tox. 4: H302; Aquatic Chronic 3: H412 - Warning	10 - <20 %
CAS: 86675-46-9	<b>Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated</b> Acute Tox. 4: H302 - Warning	10 - <20 %
CAS: 75-37-6	<b>1,1-difluoroethane</b> Flam. Gas 1A: H220; Press. Gas: H280 - Danger	2,5 - <10 %
CAS: 75-28-5	<b>Isobutane</b> Flam. Gas 1A: H220; Press. Gas: H280 - Danger	2,5 - <10 %
CAS: 115-10-6	<b>Dimethyl ether</b> Flam. Gas 1A: H220; Press. Gas: H280 - Danger	2,5 - <10 %
CAS: 78-40-0	<b>triethyl phosphate</b> Acute Tox. 4: H302; Eye Irrit. 2: H319 - Warning	1 - <2,5 %
CAS: 74-98-6	<b>Propane</b> Flam. Gas 1A: H220; Press. Gas: H280 - Danger	1 - <2,5 %

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

### Other information:

Identification	Specific concentration limit
4,4'-methylenediphenyl diisocyanate, isomers and homologues CAS: 9016-87-9	% (w/w) >=5: Skin Irrit. 2 - H315 % (w/w) >=5: Eye Irrit. 2 - H319 % (w/w) >=0,1: Resp. Sens. 1 - H334 % (w/w) >=5: STOT SE 3 - H335

Acute toxicity estimate for the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or as determined in accordance with Annex I to that Regulation:

Identification	Acute toxicity		Genus
	LD50 oral	500 mg/kg (ATEi)	
triethyl phosphate CAS: 78-40-0	LD50 dermal	Non-applicable	
	LC50 inhalation	Non-applicable	

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### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

Identification	Acute toxicity		Genus
	LD50 oral	LD50 dermal	
4,4'-methylenediphenyl diisocyanate, isomers and homologues	Non-applicable	Non-applicable	
CAS: 9016-87-9	11 mg/L (ATEI)		

### SECTION 4: FIRST AID MEASURES

#### 4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

##### By inhalation:

Remove the person affected from the area of exposure, provide with fresh air and keep at rest. In serious cases such as cardiorespiratory failure, artificial resuscitation techniques will be necessary (mouth to mouth resuscitation, cardiac massage, oxygen supply, etc.) requiring immediate medical assistance.

##### By skin contact:

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

##### By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

##### By ingestion/aspiration:

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

#### 4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

#### 4.3 Indication of any immediate medical attention and special treatment needed:

Non-applicable

### SECTION 5: FIREFIGHTING MEASURES

#### 5.1 Extinguishing media:

##### Suitable extinguishing media:

If possible use polyvalent powder fire extinguishers (ABC powder), alternatively use foam or carbon dioxide extinguishers (CO<sub>2</sub>).

##### Unsuitable extinguishing media:

IT IS RECOMMENDED NOT to use full jet water as an extinguishing agent.

#### 5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

#### 5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit, ...).

##### Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

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## SECTION 6: ACCIDENTAL RELEASE MEASURES (continued)

### 6.1 Personal precautions, protective equipment and emergency procedures:

#### For non-emergency personnel:

Isolate leaks provided that there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Evacuate the area and keep out those who do not have protection.

#### For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

### 6.2 Environmental precautions:

It is recommended to avoid environmental spillage of both the product and its container.

### 6.3 Methods and material for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

### 6.4 Reference to other sections:

See sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling:

#### A.- General precautions for safe use

Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

#### B.- Technical recommendations for the prevention of fires and explosions

Product is non-flammable under normal conditions of storage, handling and use. It is recommended to transfer at slow speeds to avoid the generation of electrostatic charges that can affect flammable products. Consult section 10 for information on conditions and materials that should be avoided.

#### C.- Technical recommendations on general occupational hygiene

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

#### D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

### 7.2 Conditions for safe storage, including any incompatibilities:

#### A.- Technical measures for storage

Store in a cool, dry, well-ventilated location

#### B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

### 7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the workplace:

EH40/2005 Workplace exposure limits, fourth edition, published 2020:

Identification	Occupational exposure limits		
	Dimethyl ether CAS: 115-10-6	WEL (8h)	400 ppm
	WEL (15 min)	500 ppm	958 mg/m <sup>3</sup>

BIOLOGICAL MONITORING GUIDANCE VALUES (BMGVs) - EH40/2005 - Isocyanates (applies to HDI, IPDI, TDI and MDI): 1 µmol isocyanate-derived diamine/mol creatinine in urine. Sampling Time: At the end of the period of exposure.

#### DNEL (Workers):

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Penosil Fire Rated Gunfoam B1 187 750ml UK

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
4,4'-methylenediphenyl diisocyanate, isomers and homologues CAS: 9016-87-9 EC: 618-498-9	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	0.1 mg/m <sup>3</sup>	Non-applicable	0.05 mg/m <sup>3</sup>
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4 EC: 807-935-0	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	2.91 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	8.2 mg/m <sup>3</sup>	Non-applicable
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-) Oxirane, Brominated, Dehydrochlorinated, Methoxylated CAS: 86675-46-9 EC: Non-applicable	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	0.87 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	6 mg/m <sup>3</sup>	Non-applicable
1,1-difluoroethane CAS: 75-37-6 EC: 200-866-1	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	2713 mg/m <sup>3</sup>	Non-applicable
Dimethyl ether CAS: 115-10-6 EC: 204-065-8	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1894 mg/m <sup>3</sup>	Non-applicable
triethyl phosphate CAS: 78-40-0 EC: 201-114-5	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	2 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	9.9 mg/m <sup>3</sup>	Non-applicable

**DNEL (General population):**

Identification		Short exposure		Long exposure	
		Systemic	Local	Systemic	Local
4,4'-methylenediphenyl diisocyanate, isomers and homologues CAS: 9016-87-9 EC: 618-498-9	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	0.05 mg/m <sup>3</sup>	Non-applicable	0.025 mg/m <sup>3</sup>
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4 EC: 807-935-0	Oral	2 mg/kg	Non-applicable	0.52 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	1.04 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1.45 mg/m <sup>3</sup>	Non-applicable
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-) Oxirane, Brominated, Dehydrochlorinated, Methoxylated CAS: 86675-46-9 EC: Non-applicable	Oral	Non-applicable	Non-applicable	0.44 mg/kg	Non-applicable
	Dermal	1.3 mg/kg	Non-applicable	0.44 mg/kg	Non-applicable
	Inhalation	4.5 mg/m <sup>3</sup>	Non-applicable	1.5 mg/m <sup>3</sup>	Non-applicable
1,1-difluoroethane CAS: 75-37-6 EC: 200-866-1	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	675 mg/m <sup>3</sup>	Non-applicable
Dimethyl ether CAS: 115-10-6 EC: 204-065-8	Oral	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Dermal	Non-applicable	Non-applicable	Non-applicable	Non-applicable
	Inhalation	Non-applicable	Non-applicable	471 mg/m <sup>3</sup>	Non-applicable
triethyl phosphate CAS: 78-40-0 EC: 201-114-5	Oral	5 mg/kg	Non-applicable	1 mg/kg	Non-applicable
	Dermal	Non-applicable	Non-applicable	1 mg/kg	Non-applicable
	Inhalation	Non-applicable	Non-applicable	1.74 mg/m <sup>3</sup>	Non-applicable

**PNEC:**

Identification				
4,4'-methylenediphenyl diisocyanate, isomers and homologues CAS: 9016-87-9 EC: 618-498-9	STP	1 mg/L	Fresh water	1 mg/L
	Soil	1 mg/kg	Marine water	0.1 mg/L
	Intermittent	10 mg/L	Sediment (Fresh water)	Non-applicable
	Oral	Non-applicable	Sediment (Marine water)	Non-applicable

- CONTINUED ON NEXT PAGE -

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Identification				
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4 EC: 807-935-0	STP	19.1 mg/L	Fresh water	0.32 mg/L
	Soil	0.34 mg/kg	Marine water	0.032 mg/L
	Intermittent	0.51 mg/L	Sediment (Fresh water)	11.5 mg/kg
	Oral	0.0116 g/kg	Sediment (Marine water)	1.15 mg/kg
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-) Oxirane, Brominated, Dehydrochlorinated, Methoxylated CAS: 86675-46-9 EC: Non-applicable	STP	1 mg/L	Fresh water	1 mg/L
	Soil	6.92 mg/kg	Marine water	0.1 mg/L
	Intermittent	10 mg/L	Sediment (Fresh water)	37.5 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	3.75 mg/kg
1,1-difluoroethane CAS: 75-37-6 EC: 200-866-1	STP	Non-applicable	Fresh water	0.048 mg/L
	Soil	0.141 mg/kg	Marine water	0.005 mg/L
	Intermittent	0.48 mg/L	Sediment (Fresh water)	0.19 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	0.019 mg/kg
Dimethyl ether CAS: 115-10-6 EC: 204-065-8	STP	160 mg/L	Fresh water	0.155 mg/L
	Soil	0.045 mg/kg	Marine water	0.016 mg/L
	Intermittent	1.549 mg/L	Sediment (Fresh water)	0.681 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	0.069 mg/kg
triethyl phosphate CAS: 78-40-0 EC: 201-114-5	STP	298.5 mg/L	Fresh water	0.632 mg/L
	Soil	0.64 mg/kg	Marine water	0.063 mg/L
	Intermittent	9 mg/L	Sediment (Fresh water)	5 mg/kg
	Oral	Non-applicable	Sediment (Marine water)	0.5 mg/kg


8.2 Exposure controls:

A.- Individual protection measures, such as personal protective equipment


In accordance with the order of importance to control professional exposure it is recommended to use localized extraction in the work area as a collective protection measure to avoid exceeding the occupational exposure limits. In case of using personal protective equipment it should have UKCA marking. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For additional information see subsection 7.1.

All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection


Pictogram	PPE	Remarks
 Mandatory respiratory tract protection	Filter mask for gases, vapours and particles	Replace when an increase in resistance to breathing is observed and/or a smell or taste of the contaminant is detected.

C.- Specific protection for the hands

Pictogram	PPE	Remarks
 Mandatory hand protection	NON-disposable chemical protective gloves	The Breakthrough Time indicated by the manufacturer must exceed the period during which the product is being used. Do not use protective creams after the product has come into contact with skin.

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.



D.- Eye and face protection

Pictogram	PPE	Remarks
 Mandatory face protection	Face shield	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.



E.- Body protection

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**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)**

Pictogram	PPE	Remarks
 Mandatory complete body protection	Disposable clothing for protection against chemical risks, with antistatic and fireproof properties	For professional use only. Clean periodically according to the manufacturer's instructions.
 Mandatory foot protection	Safety footwear for protection against chemical risk, with antistatic and heat resistant properties	Replace boots at any sign of deterioration.

F.- Additional emergency measures

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

**Environmental exposure controls:**

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

**The Volatile Organic Compounds in Paints, Varnishes and Vehicle Refinishing Products Regulations 2012:**

V.O.C. (Supply):	17.96 % weight
V.O.C. density at 20 °C:	197.78 kg/m <sup>3</sup> (197.78 g/L)

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**9.1 Information on basic physical and chemical properties:**

**Appearance:**

Physical state at 20 °C:	Aerosol
Appearance:	Not available
Colour:	Pink
Odour:	Not available
Odour threshold:	Non-applicable *

**Volatility:**

Boiling point at atmospheric pressure:	-12 °C (Propellant)
Vapour pressure at 20 °C:	Non-applicable *
Vapour pressure at 50 °C:	<300000 Pa (300 kPa)
Evaporation rate at 20 °C:	Non-applicable *

**Product description:**

Density at 20 °C:	1101 kg/m <sup>3</sup>
Relative density at 20 °C:	Non-applicable *
Dynamic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 20 °C:	Non-applicable *
Kinematic viscosity at 40 °C:	Non-applicable *
Concentration:	Non-applicable *
pH:	Non-applicable *
Vapour density at 20 °C:	Non-applicable *
Partition coefficient n-octanol/water 20 °C:	Non-applicable *
Solubility in water at 20 °C:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)**

Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	Non-applicable *
Recipient pressure:	Non-applicable *
<b>Flammability:</b>	
Flash Point:	Non-applicable
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	460 °C (Propellant)
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
<b>Particle characteristics:</b>	
Median equivalent diameter:	Non-applicable

**9.2 Other information:**

**Information with regard to physical hazard classes:**

Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *

**Other safety characteristics:**

Surface tension at 20 °C:	Non-applicable *
Refraction index:	Non-applicable *

\*Not relevant due to the nature of the product, not providing information property of its hazards.

**SECTION 10: STABILITY AND REACTIVITY**

**10.1 Reactivity:**

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7 from Safety Data Sheet.

**10.2 Chemical stability:**

Chemically stable under the indicated conditions of storage, handling and use.

**10.3 Possibility of hazardous reactions:**

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

**10.4 Conditions to avoid:**

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Risk of combustion	Avoid direct impact	Not applicable

**10.5 Incompatible materials:**

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Avoid direct impact	Not applicable	Avoid alkalis or strong bases

**10.6 Hazardous decomposition products:**

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO<sub>2</sub>), carbon monoxide and other organic compounds.

**SECTION 11: TOXICOLOGICAL INFORMATION**

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**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

**11.1 Information on toxicological effects:**

The experimental information related to the toxicological properties of the product itself is not available

Contains glycols. It is recommended not to breathe the vapours for prolonged periods of time due to the possibility of effects that are hazardous to the health.

**Dangerous health implications:**

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A- Ingestion (acute effect):

- Acute toxicity: Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
- Corrosivity/Irritability: The consumption of a considerable dose can cause irritation in the throat, abdominal pain, nausea and vomiting.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

C- Contact with the skin and the eyes (acute effect):

- Contact with the skin: Produces skin inflammation.
- Contact with the eyes: Produces eye damage after contact.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Exposure to this product can cause cancer. For more specific information on the possible health effects see section 2.  
IARC: 4,4'-methylenediphenyl diisocyanate, isomers and homologues (3)
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

E- Sensitizing effects:

- Respiratory: Prolonged exposure can result in specific respiratory hypersensitivity.
- Skin: Prolonged contact with the skin can result in episodes of allergic contact dermatitis.

F- Specific target organ toxicity (STOT) - single exposure:

Causes irritation in respiratory passages, which is normally reversible and limited to the upper respiratory passages.

G- Specific target organ toxicity (STOT)-repeated exposure:

- Specific target organ toxicity (STOT)-repeated exposure: Exposure in high concentration can interfere with the central nervous system causing headache, dizziness, vertigo, nausea, vomiting, confusion, and in serious cases, loss of consciousness.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

**Other information:**

Non-applicable

**Specific toxicology information on the substances:**

Identification	Acute toxicity		Genus
	LD50 oral	LD50 dermal	
Polymer with 2-Butyne-1,4-Diol and (Chloromethyl-)Oxirane, Brominated, Dehydrochlorinated, Methoxylated CAS: 86675-46-9	917 mg/kg	>5000 mg/kg	Rat
	>20 mg/L		
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	632 mg/kg	>2000 mg/kg	Rat
	>20 mg/L		Rat

- CONTINUED ON NEXT PAGE -

**SECTION 11: TOXICOLOGICAL INFORMATION (continued)**

Identification	Acute toxicity		Genus
	LD50 oral	LD50 dermal	
triethyl phosphate CAS: 78-40-0	500 mg/kg (ATEi)	>5000 mg/kg	
		>20 mg/L	
4,4'-methylenediphenyl diisocyanate, isomers and homologues CAS: 9016-87-9	>5000 mg/kg	>5000 mg/kg	
		11 mg/L (ATEi)	
Isobutane CAS: 75-28-5	>5000 mg/kg	>5000 mg/kg	
		>5 mg/L	
Propane CAS: 74-98-6	>5000 mg/kg	>5000 mg/kg	
		>5 mg/L	
Dimethyl ether CAS: 115-10-6	>5000 mg/kg	>5000 mg/kg	
		308.5 mg/L (4 h)	Rat
1,1-difluoroethane CAS: 75-37-6	>5000 mg/kg	>5000 mg/kg	
		>5 mg/L	

**Acute Toxicity Estimate (ATE mix):**

ATE mix		Ingredient(s) of unknown toxicity
Oral	2506.84 mg/kg (Calculation method)	0 %
Dermal	>5000 mg/kg (Calculation method)	Non-applicable
Inhalation	23.14 mg/L (4 h) (Calculation method)	0 %

**SECTION 12: ECOLOGICAL INFORMATION**

The experimental information related to the eco-toxicological properties of the product itself is not available

Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

**12.1 Toxicity:**

**Acute toxicity:**

Identification	Concentration		Species	Genus
	LC50	EC50		
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	100 mg/L (96 h)	131 mg/L (48 h)	Danio rerio	Fish
		82 mg/L (72 h)	Daphnia magna	Crustacean
			Pseudokirchneriella subcapitata	Algae

**Chronic toxicity:**

Identification	Concentration		Species	Genus
	NOEC	NOEC		
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	Non-applicable	32 mg/L	Daphnia magna	Crustacean

**12.2 Persistence and degradability:**

**Substance-specific information:**

Identification	Degradability		Biodegradability	
	BOD5	COD	Concentration	Period
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	Non-applicable	Non-applicable	20 mg/L	28 days
	Non-applicable	Non-applicable	% Biodegradable	14 %

**12.3 Bioaccumulative potential:**

**Substance-specific information:**

- CONTINUED ON NEXT PAGE -

**SECTION 12: ECOLOGICAL INFORMATION (continued)**

Identification	Bioaccumulation potential	
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	BCF	8
	Pow Log	3.17
	Potential	Low
Isobutane CAS: 75-28-5	BCF	27
	Pow Log	2.76
	Potential	Low
Propane CAS: 74-98-6	BCF	13
	Pow Log	2.86
	Potential	Low

**12.4 Mobility in soil:**

Identification	Absorption/desorption		Volatility	
	Koc		Henry	
Reaction products of phosphoryl trichloride and 2-methyloxirane CAS: 1244733-77-4	Koc	324.2	Henry	6E-3 Pa·m <sup>3</sup> /mol
	Conclusion	Moderate	Dry soil	Non-applicable
	Surface tension	Non-applicable	Moist soil	Non-applicable
1,1-difluoroethane CAS: 75-37-6	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	1.003E-2 N/m (25 °C)	Moist soil	Non-applicable
Isobutane CAS: 75-28-5	Koc	35	Henry	120576.75 Pa·m <sup>3</sup> /mol
	Conclusion	Very High	Dry soil	Yes
	Surface tension	9.84E-3 N/m (25 °C)	Moist soil	Yes
Dimethyl ether CAS: 115-10-6	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	1.136E-2 N/m (25 °C)	Moist soil	Non-applicable
triethyl phosphate CAS: 78-40-0	Koc	Non-applicable	Henry	Non-applicable
	Conclusion	Non-applicable	Dry soil	Non-applicable
	Surface tension	2.961E-2 N/m (25 °C)	Moist soil	Non-applicable
Propane CAS: 74-98-6	Koc	460	Henry	71636.78 Pa·m <sup>3</sup> /mol
	Conclusion	Moderate	Dry soil	Yes
	Surface tension	7.02E-3 N/m (25 °C)	Moist soil	Yes

**12.5 Results of PBT and vPvB assessment:**

Product does not meet PBT/vPvB criteria

**12.6 Other adverse effects:**

Not described

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods:**

Code	Description	Waste class
16 05 04*	gases in pressure containers (including halons) containing hazardous substances	Dangerous

**Type of waste:**

HP3 Flammable, HP5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity, HP6 Acute Toxicity, HP7 Carcinogenic, HP13 Sensitising, HP4 Irritant — skin irritation and eye damage

**Waste management (disposal and evaluation):**

Consult the authorized waste service manager on the assessment and disposal operations in accordance The Waste Regulations 2011, 2011 No. 988. As under 15 01 of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-dangerous residue. Waste should not be disposed of to drains. See paragraph 6.2.

**Regulations related to waste management:**

In accordance with Annex II of UK REACH the provisions related to waste management are stated:

- CONTINUED ON NEXT PAGE -

## SECTION 13: DISPOSAL CONSIDERATIONS (continued)

UK legislation: The Waste Regulations 2011.

## SECTION 14: TRANSPORT INFORMATION

### Transport of dangerous goods by land:

With regard to ADR 2023 and RID 2023:



- |   |                |
|---|----------------|
| <b>14.1 UN number:</b>  | UN1950         |
| <b>14.2 UN proper shipping name:</b>  | AEROSOLS       |
| <b>14.3 Transport hazard class(es):</b>   | 2              |
| Labels:   | 2.1            |
| <b>14.4 Packing group:</b>  | N/A            |
| <b>14.5 Environmental hazards:</b>  | No             |
| <b>14.6 Special precautions for user</b>  |                |
| Tunnel restriction code:  | D              |
| Physico-Chemical properties:  | see section 9  |
| Limited quantities:   | 1 L            |
| <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:</b> | Non-applicable |

### Transport of dangerous goods by sea:

With regard to IMDG 40-20:



- |   |                             |
|---|-----------------------------|
| <b>14.1 UN number:</b>  | UN1950                      |
| <b>14.2 UN proper shipping name:</b>  | AEROSOLS                    |
| <b>14.3 Transport hazard class(es):</b>   | 2                           |
| Labels:   | 2.1                         |
| <b>14.4 Packing group:</b>  | N/A                         |
| <b>14.5 Marine pollutant:</b>   | No                          |
| <b>14.6 Special precautions for user</b>  |                             |
| Special regulations:  | 63, 959, 190, 277, 327, 344 |
| EmS Codes:  | F-D, S-U                    |
| Physico-Chemical properties:  | see section 9               |
| Limited quantities:   | 1 L                         |
| Segregation group:  | Non-applicable              |
| <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:</b> | Non-applicable              |

### Transport of dangerous goods by air:

With regard to IATA/ICAO 2023:



- |   |                |
|---|----------------|
| <b>14.1 UN number:</b>  | UN1950         |
| <b>14.2 UN proper shipping name:</b>  | AEROSOLS       |
| <b>14.3 Transport hazard class(es):</b>   | 2              |
| Labels:   | 2.1            |
| <b>14.4 Packing group:</b>  | N/A            |
| <b>14.5 Environmental hazards:</b>  | No             |
| <b>14.6 Special precautions for user</b>  |                |
| Physico-Chemical properties:  | see section 9  |
| <b>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:</b> | Non-applicable |

## SECTION 15: REGULATORY INFORMATION

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

- Substances listed in UK candidate list of substances of very high concern (SVHCs): Non-applicable
- Substances listed in UK REACH Authorisation List (Annex 14): Non-applicable

- CONTINUED ON NEXT PAGE -

**SECTION 15: REGULATORY INFORMATION (continued)**

**The Control of Major Accident Hazards Regulations 2015:**

Section	Description	Lower-tier requirements	Upper-tier requirements
P3a	FLAMMABLE AEROSOLS	150	500

**Restrictions to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII UK REACH, etc ....):**

- CONTINUED ON NEXT PAGE -

SECTION 15: REGULATORY INFORMATION (continued)

Contains more than 0.1 % of 4,4'-methylenediphenyl diisocyanate, isomers and homologues by weight. 1. Shall not be used as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 August 2023, unless:

(a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the employer or self-employed ensures that industrial or professional user(s) have successfully completed training on the safe use of diisocyanates prior to the use of the substance(s) or mixture(s).

2. Shall not be placed on the market as substances on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) after 24 February 2022, unless:

(a) the concentration of diisocyanates individually and in combination is less than 0,1 % by weight, or (b) the supplier ensures that the recipient of the substance(s) or mixture(s) is provided with information on the requirements referred to in point (b) of paragraph 1 and the following statement is placed on the packaging, in a manner that is visibly distinct from the rest of the label information: "As from 24 August 2023 adequate training is required before industrial or professional use".

3. For the purpose of this entry "industrial and professional user(s)" means any worker or self-employed worker handling diisocyanates on their own, as a constituent in other substances or in mixtures for industrial and professional use(s) or supervising these tasks.

4. The training referred to in point (b) of paragraph 1 shall include the instructions for the control of dermal and inhalation exposure to diisocyanates at the workplace without prejudice to any national occupational exposure limit value or other appropriate risk management measures at national level. Such training shall be conducted by an expert on occupational safety and health with competence acquired by relevant vocational training. That training shall cover as a minimum:

(a) the training elements in point (a) of paragraph 5 for all industrial and professional use(s).

(b) the training elements in points (a) and (b) of paragraph 5 for the following uses:

- handling open mixtures at ambient temperature (including foam tunnels)
- spraying in a ventilated booth
- application by roller
- application by brush
- application by dipping and pouring
- mechanical post treatment (e.g. cutting) of not fully cured articles which are not warm anymore
- cleaning and waste
- any other uses with similar exposure through the dermal and/or inhalation route

(c) the training elements in points (a), (b) and (c) of paragraph 5 for the following uses:

- handling incompletely cured articles (e.g. freshly cured, still warm)
- foundry applications
- maintenance and repair that needs access to equipment
- open handling of warm or hot formulations (> 45 °C)
- spraying in open air, with limited or only natural ventilation (includes large industry working halls) and spraying with high energy (e.g. foams, elastomers)
- and any other uses with similar exposure through the dermal and/or inhalation route.

5. Training elements:

(a) general training, including on-line training, on:

- chemistry of diisocyanates
- toxicity hazards (including acute toxicity)
- exposure to diisocyanates
- occupational exposure limit values
- how sensitisation can develop
- odour as indication of hazard
- importance of volatility for risk
- viscosity, temperature, and molecular weight of diisocyanates
- personal hygiene
- personal protective equipment needed, including practical instructions for its correct use and its limitations
- risk of dermal contact and inhalation exposure
- risk in relation to application process used
- skin and inhalation protection scheme
- ventilation
- cleaning, leakages, maintenance
- discarding empty packaging
- protection of bystanders
- identification of critical handling stages
- specific national code systems (if applicable)
- behaviour-based safety
- certification or documented proof that training has been successfully completed

(b) intermediate level training, including on-line training, on:

- additional behaviour-based aspects
- maintenance
- management of change
- evaluation of existing safety instructions
- risk in relation to application process used

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**SECTION 15: REGULATORY INFORMATION (continued)**

- certification or documented proof that training has been successfully completed
  - (c) advanced training, including on-line training, on:
    - any additional certification needed for the specific uses covered
    - spraying outside a spraying booth
    - open handling of hot or warm formulations (> 45 °C)
  - certification or documented proof that training has been successfully completed
6. The training shall comply with the provisions set by the Member State in which the industrial or professional user(s) operate. Member States may implement or continue to apply their own national requirements for the use of the substance(s) or mixture(s), as long as the minimum requirements set out in paragraphs 4 and 5 are met.
7. The supplier referred to in point (b) of paragraph 2 shall ensure that the recipient is provided with training material and courses pursuant to paragraphs 4 and 5 in the official language(s) of the Member State(s) where the substance(s) or mixture(s) are supplied. The training shall take into consideration the specificity of the products supplied, including composition, packaging, and design.
8. The employer or self-employed shall document the successful completion of the training referred to in paragraphs 4 and 5. The training shall be renewed at least every five years.
9. Member States shall include in their reports pursuant to Article 117(1) the following information:
- (a) any established training requirements and other risk management measures related to the industrial and professional uses of diisocyanates foreseen in national law
  - (b) the number of cases of reported and recognised occupational asthma and occupational respiratory and dermal diseases in relation to diisocyanates
  - (c) national exposure limits for diisocyanates, if there are any
  - (d) information about enforcement activities related to this restriction.
10. This restriction shall apply without prejudice to other Union legislation on the protection of safety and health of workers at the workplace.

Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

Contains Octamethylcyclotetrasiloxane. 1. | Shall not be placed on the market in wash-off cosmetic products in a concentration equal to or greater than 0,1 % by weight of either substance, after 31 January 2020. | 2. | For the purposes of this entry, "wash-off cosmetic products" means cosmetic products as defined in Article 2(1)(a) of Regulation (EC) No 1223/2009 that, under normal conditions of use, are washed off with water after application.'

Contains more than 0.1 % of 4,4'-methylenediphenyl diisocyanate, isomers and homologues by weight. This product may not be distributed in its present form for first-time sale to the general public after 27th December 2010 unless the packaging contains protective gloves meeting the provisions of Regulation (EU) 2016/425.

**Specific provisions in terms of protecting people or the environment:**

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

**Other legislation:**

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.  
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2020.  
Control of Substances Hazardous to Health Regulations 2002 (as amended)  
EH40/2005 Workplace exposure limits.  
The Aerosol Dispensers Regulations 2009  
The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019: SCHEDULE 13 -Amendment of the Aerosol Dispensers Regulations 2009  
The Product Safety and Metrology etc. (Amendment etc.) (UK(NI) Indication) (EU Exit) Regulations 2020

**SECTION 16: OTHER INFORMATION****Legislation related to safety data sheets:**

This safety data sheet has been designed in accordance with ANNEX II-The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.

**Texts of the legislative phrases mentioned in section 2:**

- CONTINUED ON NEXT PAGE -

**SECTION 16: OTHER INFORMATION (continued)**

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

**Texts of the legislative phrases mentioned in section 3:**

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

**GB CLP Regulation:**

Acute Tox. 4: H302 - Harmful if swallowed.  
Acute Tox. 4: H332 - Harmful if inhaled.  
Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.  
Carc. 2: H351 - Suspected of causing cancer.  
Eye Irrit. 2: H319 - Causes serious eye irritation.  
Flam. Gas 1A: H220 - Extremely flammable gas.  
Press. Gas: H280 - Contains gas under pressure, may explode if heated.  
Resp. Sens. 1: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
Skin Irrit. 2: H315 - Causes skin irritation.  
Skin Sens. 1: H317 - May cause an allergic skin reaction.  
STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure.  
STOT SE 3: H335 - May cause respiratory irritation.

**Classification procedure:**

Eye Irrit. 2: Calculation method  
Skin Irrit. 2: Calculation method  
Resp. Sens. 1: Calculation method  
Skin Sens. 1: Calculation method  
Carc. 2: Calculation method  
STOT SE 3: Calculation method  
STOT RE 2: Calculation method  
Aerosol 1: Calculation method  
Aerosol 1: Calculation method

**Advice related to training:**

Training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

**Principal bibliographical sources:**

<http://echa.europa.eu>  
<http://eur-lex.europa.eu>

**Abbreviations and acronyms:**

ADR: European agreement concerning the international carriage of dangerous goods by road  
IMDG: International maritime dangerous goods code  
IATA: International Air Transport Association  
ICAO: International Civil Aviation Organisation  
COD: Chemical Oxygen Demand  
BOD5: 5day biochemical oxygen demand  
BCF: Bioconcentration factor  
LD50: Lethal Dose 50  
LC50: Lethal Concentration 50  
EC50: Effective concentration 50  
LogPOW: Octanol/water partition coefficient  
Koc: Partition coefficient of organic carbon  
UFI: unique formula identifier  
IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at UK, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -