

Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878 and to Annex II to UK REACH

Section 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	PU Foam Fire Resistant P
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1.2 Relevant identified uses of the substance or mixture and uses advised against

Intended use
Single-component polyurethane foam in aerosol generators.

1.3 Details of the supplier of the safety data sheet

Company name	TORGGLER S.R.L.
Full address	Via Prati Nuovi 9
Town	Marlengo
Postal code	39020
Province	BZ
Country	Italy
Phone number	+39 0473 282400
Fax	+39 0473 282501
e-mail address of the competent person responsible for the Safety Data Sheet	reach@torggler.com

1.4 Emergency telephone number

For urgent inquiries refer to	+39 348 662 70 93 (08.00 - 17.30)
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Section 2 Hazards identification

2.1 Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification

Aerosol, category 1	H222 H229	Extremely flammable aerosol. Pressurised container: may burst if heated.
Acute toxicity, category 4	H302	Harmful if swallowed.
Skin irritation, category 2	H315	Causes skin irritation.
Skin sensitization, category 1	H317	May cause an allergic skin reaction.
Eye irritation, category 2	H319	Causes serious eye irritation.
Acute toxicity, category 4	H332	Harmful if inhaled.
Respiratory sensitization, category 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Specific target organ toxicity - single exposure, category 3	H335	May cause respiratory irritation.
Carcinogenicity, category 2	H351	Suspected of causing cancer.
Specific target organ toxicity - repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

2.2 Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Section 2

Hazard pictograms



Signal word

Danger

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: may burst if heated.
H302+H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
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.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P501	Dispose of contents and container in accordance with local and national regulations.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251	Do not pierce or burn, even after use.
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50°C / 122°F.
P102	Keep out of reach of children.
P211	Do not spray on an open flame or other ignition source.

Supplementary hazard statements

EUH204	Contains isocyanates. May produce an allergic reaction.
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Contains

Diphenylmethanediisocyanate, isomers and homologues
 Reaction products of phosphoryl trichloride and 2-methyloxirane
 ETHYLENE GLYCOL

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

Additional information according to EC Regulation no. 552/2009 of 22 June 2009:

The use of this product may cause allergic reactions in people already sensitized to diisocyanates. People with 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 a suitable gas filter (e.g. type A1 according to EN 14387) is used.

2.3 Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.
 The product does not contain substances with endocrine disrupting properties in concentration $\geq$ 0.1%.

During use, it can form explosive/flammable mixtures with air.

Section 3 Composition/information on ingredients

Polyurethane based prepolymer and propellant gases in aerosol can

Section 3

3.2 Mixtures

Diphenylmethanediisocyanate, isomers and homologues

Concentration	$41 \leq x < 50 \%$
CAS number	9016-87-9
EC number	618-498-9
Hazard classification	▪ Skin Irrit. 2; H315 ▪ Skin Sens. 1; H317 ▪ Eye Irrit. 2; H319 ▪ Acute Tox. 4; H332 ▪ Resp. Sens. 1; H334 ▪ STOT SE 3; H335 ▪ Carc. 2; H351 ▪ STOT RE 2; H373
Specific concentration limits	▪ STOT SE 3; H335: $\geq 5 \%$ ▪ Skin Irrit. 2; H315: $\geq 5 \%$ ▪ Eye Irrit. 2; H319: $\geq 5 \%$

ATE (Inhalation - mists / powders) 1.5 mg/l

Substance with a community workplace exposure limit.

The substance includes:

- 4,4'-Diphenylmethane diisocyanate

Index 615-005-00-9; CE 2202-966-0; CAS 101-68-8; Registration No. 01-2119457014-47-XXXX

- 2,4'-METHYLENEBIS(PHENYL ISOCYANATE)

Index 615-005-00-9; CE 227-534-9; CAS 5873-54-1; Registration No. 01-2119480143-45-XXXX

- 2,2'-methylenediphenyl diisocyanate

Index 615-005-00-9; CE 219-799-4; CAS 2536-05-2; Registration No. 01-211927323-43-XXXX

Classified:

Car. 2 H351

Acute Tox. 4 H332

Stot Re 2 H373

Eye Irrit. 2 H319 (specific concentration limit: $\geq 5\%$)

Stot if 3 H335 (specific concentration limit: $\geq 5\%$)

Skin Irrit. 2 H315 (Specific concentration limit: $\geq 5\%$)

Resp. Sens. 1 H334 (specific concentration limit: $\geq 0.1\%$)

Skin Sens.1 H317

Reaction products of phosphoryl trichloride and 2-methyloxirane

Concentration	$25.9 \leq x < 40 \%$
CAS number	1244733-77-4
EC number	807-935-0
Registration Number	01-2119486772-26-xxxx
Hazard classification	▪ Acute Tox. 4; H302 ▪ Carc. 2; H351 ▪ Aquatic Chronic 3; H412
LD50 (Oral):	632 mg/kg

Dimethyl ether

Concentration	$9 \leq x < 14 \%$
CAS number	115-10-6
EC number	204-065-8
INDEX number	603-019-00-8
Registration Number	01-2119472128-37-xxxx
Hazard classification	▪ Flam. Gas 1A; H220 ▪ Press. Gas; H280

Section 3

Classification note according to Annex VI to the CLP Regulation: U
Substance with a community workplace exposure limit.

Reaction mass of 2-ethylpropane-1,3-diol and 5-ethyl-1,3-dioxane-5-methanol and propylidynetrimethanol

Concentration	$1.8 \leq x < 2.8 \%$
EC number	904-153-2
Registration Number	01-2119488034-38-xxxx
Hazard classification	- Eye Irrit. 2; H319 - Repr. 2; H361fd

ETHYLENE GLYCOL

Concentration	$0.81 \leq x < 1.26 \%$
CAS number	107-21-1
EC number	203-473-3
INDEX number	603-027-00-1
Hazard classification	Acute Tox. 4; H302
ATE (Oral)	500 mg/kg

Substance with a community workplace exposure limit.

The full wording of hazard (H) phrases is given in section 16 of the sheet.

The product is an aerosol containing propellants. For the purposes of calculation of the health hazards, propellants are not considered (unless they have health hazards). The percentages indicated are inclusive of the propellants.

Percentage of propellants: 25 %

Section 4 First aid measures

4.1 Description of first aid measures

In case of doubt or in the presence of symptoms contact a doctor and show him this document.

In case of more severe symptoms, ask for immediate medical aid.

EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.

INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Do not give anything by mouth to an unconscious person. Get medical advice/attention.

INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

Rescuers protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2 Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

DELAYED EFFECTS: Poisoning symptoms can appear even hours after exposure: it is therefore appropriate to keep the injured person under observation in the hours following the accident.

4.3 Indication of any immediate medical attention and special treatment needed

Call a poison center/doctor if you feel unwell.

Means to have available in the workplace for specific and immediate treatment

Section 4

Running water for skin and eye wash.

Section 5 Firefighting measures**5.1 Extinguishing media**

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2 Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

If overheated, aerosol cans can deform, explode and be propelled considerable distances. Put a protective helmet on before approaching the fire.

Do not breathe combustion products.

5.3 Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health.

Always wear full fire prevention gear.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

Section 6 Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site. Send away individuals who are not suitably equipped. Wear protective gloves / protective clothing / eye protection / face protection.

6.2 Environmental precautions

Do not disperse in the environment.

6.3 Methods and material for containment and cleaning up

Use inert absorbent material to soak up leaked product. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4 Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

Section 7 Handling and storage**7.1 Precautions for safe handling**

Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment.

Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat.

7.2 Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

Section 7

Storage class TRGS 510 (Germany)

2B – Aerosol dispensers and lighters

Applicable technical instruction according to Royal Decree 656/2017:

Classification	Storage in fixed containers	Storage in mobile containers
▪ H222 – Aerosol 1	Not applicable	MIE APQ-10 – Storage in mobile containers

Respect the joint storage conditions established in Royal Decree 656/2017.

7.3 Specific end use(s)

Special uses:
Building and construction.

Section 8 Exposure controls/personal protection

8.1 Control parameters

Regulatory references	
ACGIH	ACGIH 2026
European Union-OEL	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
Ireland-OELV	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
Malta-TLV	PROTECTION OF THE HEALTH AND SAFETY OF WORKERS FROM THE RISKS RELATED TO CHEMICAL AGENTS AT WORK REGULATIONS (S.L.424.24). PROTECTION OF WORKERS FROM THE RISKS RELATED TO EXPOSURE TO CARCINOGENS OR MUTAGENS AT WORK REGULATIONS (S.L.424.22)

Dimethyl ether

	TWA		STEL		CEILING		Remarks
	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	
European Union-OEL	1,920	1,000					--

Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	160 mg/l
Normal value in fresh water	0.155 mg/l
Normal value for fresh water sediment	0.681 mg/kg/d
Normal value in marine water	0.016 mg/l
Normal value for marine water sediment	0.069 mg/kg/d
Normal value for the terrestrial compartment	0.045 mg/kg/d
Normal value for water, intermittent release	1.549 mg/l

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, long-term, inhalation	Not available	471 mg/m ³
Workers, long-term, inhalation	Not available	1,894 mg/m ³

ETHYLENE GLYCOL

	TWA		STEL		CEILING		Remarks
	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	
ACGIH			10				Inhalation
ACGIH		25		50			--
European Union-OEL	52	20	104	40			Skin
Ireland-OELV	52	20	104	40			Skin
Malta-TLV	52	20	104	40			Skin

Section 8

Diphenylmethanediisocyanate, isomers and homologues

	TWA		STEL		CEILING		Remarks
	mg/m ³	ppm	mg/m ³	ppm	mg/m ³	ppm	
European Union-OEL		0.005					--

Predicted no-effect concentration - PNEC

Normal value in fresh water	
Normal value for fresh water sediment	11.7 mg/kg/d
Normal value in marine water	
Normal value for marine water sediment	1.17 mg/kg/d
Normal value for the terrestrial compartment	2.33 mg/kg/d

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, dermal	17.2 mg/cm ²	25 mg/cm ²
Consumers, short-term, inhalation	0.05 mg/m ³	0.05 mg/m ³
Consumers, long-term, inhalation	0.025 mg/m ³	0.025 mg/m ³
Consumers, long-term, oral		20 mg/kg bw/d
Workers, short-term, dermal	28.7 mg/cm ²	50 mg/cm ²
Workers, short-term, inhalation	0.1 mg/m ³	0.1 mg/m ³
Workers, long-term, inhalation	0.05 mg/m ³	0.05 mg/m ³

DNEL component CAS 101-68-8; 4,4'-methylenediphenyl diisocyanate :

Workers:

(Dermal) acute short -term exposure - systemic effects: DNEL 50 mg for 1 kg of body weight per day
Acute short -term acute exposure (inhalation) - systemic effects: 0.1 mg/ m³ dnel
(Dermica) acute short -term exposure - Local effects: DNEL 28.7 mg/cm²
Acute short -term acute exposure (inhalation) - Local effects: 0.1 mg/ m³ DNEL
Long -term exposure (inhalation) - systemic effects: DNEL 0.05 mg/ m³
Long -term exposure (dermal) - systemic effects: not applicable.
Long -term exposure (inhalation) - Local effects: DNEL 0.05 mg/ m³
Long -term exposure (dermal) - Local effects: not applicable.

Population:

(Dermal) acute short -term exposure - systemic effects: dnel 25 mg for kg of body weight per day
Acute short -term acute exposure (inhalation) - systemic effects: DNEL 0.05 mg/ m³
Acute short -term acute exposure - systemic effects: DNEL 20 mg for kg of body weight per day
(Dermica) acute short -term exposure - Local effects: DNEL 17.2 mg/cm²
Acute short -term acute exposure (inhalation) - Local effects: DNEL 0.05 mg/ m³
Long -term exposure (inhalation) - systemic effects: DNEL 0.025 mg/ m³
Long -term exposure (dermal) - systemic effects: not applicable.
Long -term exposure (oral) - systemic effects: not applicable.
Long -term exposure (inhalation) - Local effects: DNEL 0.025 mg/ m³
Long -term exposure (dermal) - Local effects: not applicable.
Long -term exposure (oral) - Local effects: not applicable.

Reaction mass of 2-ethylpropane-1,3-diol and 5-ethyl-1,3-dioxane-5-methanol and propylidynetrimethanol

Predicted no-effect concentration - PNEC	
Normal value of STP microorganisms	100 mg/l
Normal value in fresh water	6.2 mg/l
Normal value for fresh water sediment	30.48 mg/kg/d
Normal value in marine water	0.62 mg/l
Normal value for marine water sediment	3.05 mg/kg/d
Normal value for the terrestrial compartment	2.45 mg/kg/d
Normal value for fresh water, intermittent release	7.43 mg/l

Section 8

Reaction products of phosphoryl trichloride and 2-methyloxirane

Predicted no-effect concentration - PNEC

Normal value of STP microorganisms	19.1 mg/l
Normal value in fresh water	0.32 mg/l
Normal value for fresh water sediment	11.5 mg/kg/d
Normal value in marine water	0.032 mg/l
Normal value for marine water sediment	1.15 mg/kg/d
Normal value for the terrestrial compartment	0.34 mg/kg/d
Normal value for the food chain (secondary poisoning)	11.6 mg/kg

Health - Derived no-effect level - DNEL / DMEL	Local effect	Systemic effect
Consumers, short-term, inhalation		5.6 mg/m ³
Consumers, short-term, oral		2 mg/kg bw/d
Consumers, long-term, dermal		1.04 mg/kg bw/d
Consumers, long-term, inhalation		1.45 mg/m ³
Consumers, long-term, oral		0.52 mg/kg bw/d
Workers, short-term, inhalation		22.6 mg/m ³
Workers, long-term, inhalation		8.2 mg/m ³

8.2 Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

When choosing risk management measures and operating conditions, consult the exposure scenarios attached.

Provide an emergency shower with face and eye wash station.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

HAND PROTECTION

None required.

If supplied, for a short duration of manipulation (indicated in the device manual), it is possible to use the disposable glove supplied together with the product compliant with EU regulation 2016/425 and CE certified.

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344/EN ISO 13034).

Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, a mask with a type AX filter combined with a type P filter should be worn (see standard EN 14387).

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

Section 9

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	aerosol	
Colour	grey	
Odour	characteristic	
Odour threshold	Not applicable	
Melting point / freezing point	Not available	
Initial boiling point	Not applicable	
Flammability	flammable gas	
Lower explosive limit	1.5 % (w/w)	Remarks: liquefied gas
Upper explosive limit	16 % (w/w)	Remarks: liquefied gas
Flash point	Not applicable	
Auto-ignition temperature	226 °C (438.8 °F)	Remarks: 1 013 hPa
Decomposition temperature	Not available	
pH	not soluble in water	
Kinematic viscosity	Not applicable	
Solubility	insoluble in water	
Partition coefficient: n-octanol/water	Not available	
Vapour pressure	Not applicable	
Density and/or relative density	1.2455 kg/l	
Relative vapour density	Not available	

Particle characteristics

Information not available.

9.2 Other information

9.2.1 Information with regard to physical hazards

Information not available.

9.2.2 Other safety characteristics

Evaporation rate	the propellant is released, the extruded PU foam does not evaporate.	
Explosive properties	The product is not explosive but the formation of explosive air/gas mixtures is possible.	
Total solids	96.13 %	Temperature: 250 °C (482 °F)

Section 10 Stability and reactivity

10.1 Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

ETHYLENE GLYCOL

In the air absorbs moisture

Decomposes at temperatures above 200 °C (392 °F)

Diphenylmethanediisocyanate, isomers and homologues

Reacts with: water, acids, alcohols, amines, bases

Section 10

10.2 Chemical stability

The product is stable in normal conditions of use and storage.

10.3 Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

ETHYLENE GLYCOL

Risk of explosion on contact with: perchloric acid

May react dangerously with: chlorosulphuric acid, sodium hydroxide, sulphuric acid, phosphorus pentasulphide, chromium (III) oxide, chromyl chloride, potassium perchlorate, potassium dichromate, sodium peroxide, aluminium

Forms explosive mixtures with: air

Diphenylmethanediisocyanate, isomers and homologues

Risk of explosion on contact with: water, acids, alcohols, amines, bases

10.4 Conditions to avoid

Avoid overheating.

Dimethyl ether

Avoid exposure to: heat, naked flames, electrostatic discharges

ETHYLENE GLYCOL

Avoid exposure to: sources of heat, naked flames

Diphenylmethanediisocyanate, isomers and homologues

Avoid exposure to: high temperatures, moisture

10.5 Incompatible materials

Strong reducing or oxidising agents, strong acids or alkalis, hot material.

Dimethyl ether

Avoid contact with: strong oxidising agents, natural rubbers, oxygen

Diphenylmethanediisocyanate, isomers and homologues

Keep away from: water, acids, alcohols, amines, bases

10.6 Hazardous decomposition products**ETHYLENE GLYCOL**

May develop: hydroxyacetaldehyde, glyoxal, acetaldehyde, methane, carbon monoxide, hydrogen

Section 11 Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.

It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**11.1.1 Metabolism, toxicokinetics, mechanism of action and other information**

Information not available.

11.1.2 Information on likely routes of exposure**ETHYLENE GLYCOL**

WORKERS: inhalation; contact with the skin.

POPULATION: inhalation of ambient air; contact with the skin of products containing the substance.

Section 11

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

ETHYLENE GLYCOL

Ingestion initially stimulates the central nervous system; later replaced by a phase of depression. There may be kidney damage, with anuria and uremia. Over-exposure symptoms are: vomiting, drowsiness, difficulty in breathing, convulsions. The lethal dose for humans is approx. 1.4 ml/kg.

11.1.4 Interactive effects

Information not available.

11.1.5 ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture	2.598 mg/l
ATE (Oral) of the mixture	1,583.293 mg/kg
ATE (Dermal) of the mixture	Not classified (no significant component)

Dimethyl ether

LC50 (Inhalation vapours):	309 mg/l	Exposure duration: 4 hours Species/guidelines: Rat
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ETHYLENE GLYCOL

LD50 (Oral):	> 2,000 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	9,530 mg/kg	Species/guidelines: Rabbit
ATE (Oral)	500 mg/kg	estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)

Diphenylmethanediisocyanate, isomers and homologues

LD50 (Oral):	> 2,000 mg/kg	Species/guidelines: Rat (OECD 401)
LD50 (Dermal):	> 9,400 mg/kg	Species/guidelines: Rabbit (OEC 402)
LC50 (Inhalation mists/powders):	0.31 mg/l	Exposure duration: 4 hours Species/guidelines: Rat (OECD 453)
ATE (Inhalation - mists / powders)	1.5 mg/l	estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)

Reaction mass of 2-ethylpropane-1,3-diol and 5-ethyl-1,3-dioxane-5-methanol and propylidynetrimethanol

LD50 (Oral):	2,000 mg/kg	Species/guidelines: Rat
LD50 (Dermal):	10,000 mg/kg	Species/guidelines: Rabbit

Reaction products of phosphoryl trichloride and 2-methyloxirane

LD50 (Oral):	632 mg/kg	Species/guidelines: Rat - Female
LD50 (Dermal):	> 2,000 mg/kg	Species/guidelines: Rat
LC50 (Inhalation mists/powders):	> 7 mg/l	Exposure duration: 4 hours Species/guidelines: Rat - Male, Female

11.1.6 SKIN CORROSION/IRRITATION

Causes skin irritation.

11.1.7 SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation.

11.1.8 RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin
Sensitising for the respiratory system

Section 11

11.1.9 GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

11.1.10 CARCINOGENICITY

Suspected of causing cancer.

ETHYLENE GLYCOL

Available studies have shown no carcinogenic potential. In a carcinogenicity study lasting two years, carried out by the US National Toxicology Program (NTP), in which ethylene glycol was administered in the feed, "no evidence of carcinogenic activity" in male and female B6C3F1 mice was observed (NTP, 1993).

11.1.11 REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

11.1.12 STOT - SINGLE EXPOSURE

May cause respiratory irritation.

11.1.13 STOT - REPEATED EXPOSURE

May cause damage to organs through prolonged or repeated exposure.

11.1.14 ASPIRATION HAZARD

Excluded because the aerosol does not allow the accumulation of a significant amount of product in the mouth

11.2 Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

Section 12 Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1 Toxicity

Dimethyl ether

EC50 - for Crustacea	> 4.4 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	> 4.1 mg/l	Exposure duration: 96 hours Species/guidelines: Poecilia reticulata
EC50 - for Algae / Aquatic Plants	154.9 mg/l	Exposure duration: 72 hours Species/guidelines: met. ECOSAR

Diphenylmethanediisocyanate, isomers and homologues

EC50 - for Crustacea	> 9 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna (OECD 202)
LC50 - for Fish	> 100 mg/l	Exposure duration: 96 hours Species/guidelines: Danio rerio (OECD 203)
EC50 - for Algae / Aquatic Plants	> 100 mg/l	Exposure duration: 72 hours Species/guidelines: Scenedesmus subspicatus (OECD 201)

Reaction mass of 2-ethylpropane-1,3-diol and 5-ethyl-1,3-dioxane-5-methanol and propylidynetrimethanol

EC50 - for Crustacea	1,090 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna - OECD Guideline 202
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LC50 - for Fish	1,250 mg/l	Exposure duration: 96 hours Species/guidelines: Brachydanio rerio - OECD 203
EC50 - for Algae / Aquatic Plants	144 mg/l	Exposure duration: 72 hours Species/guidelines: Selenastrum capricornutum - OECD test guideline 201
Chronic NOEC for Fish	500 mg/l	Species/guidelines: Brachydanio rerio
Chronic NOEC for Crustacea	500 mg/l	Species/guidelines: Daphnia magna (OECD 202)
Chronic NOEC for Algae / Aquatic Plants	62 mg/l	Species/guidelines: Selenastrum capricornutum

Reaction products of phosphoryl trichloride and 2-methyloxirane

EC50 - for Crustacea	131 mg/l	Exposure duration: 48 hours Species/guidelines: Daphnia magna
LC50 - for Fish	56.2 mg/l	Exposure duration: 96 hours Species/guidelines: Brachydanio rerio
EC50 - for Algae / Aquatic Plants	82 mg/l	Exposure duration: 72 hours Species/guidelines: Pseudokirchneriella subcapitata

12.2 Persistence and degradability

Dimethyl ether

Degradability	NOT rapidly degradable
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ETHYLENE GLYCOL

Solubility in water	$1,000 \leq x \leq 10,000$ mg/l
Degradability	Rapidly degradable

Diphenylmethanediisocyanate, isomers and homologues

Degradability	NOT rapidly degradable
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Reaction mass of 2-ethylpropane-1,3-diol and 5-ethyl-1,3-dioxane-5-methanol and propylidynetrimethanol

Solubility in water	1,000 g/l
Degradability	Inherently degradable

Reaction products of phosphoryl trichloride and 2-methyloxirane

Solubility in water	1.08 g/l
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12.3 Bioaccumulative potential

Dimethyl ether

Partition coefficient n-octanol/water	0.07 LogKow
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ETHYLENE GLYCOL

Partition coefficient n-octanol/water	-1.36 LogKow
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Reaction products of phosphoryl trichloride and 2-methyloxirane

Partition coefficient n-octanol/water	2.68 LogKow
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12.4 Mobility in soil

Information not available.

12.5 Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.

12.6 Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

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12.7 Other adverse effects

Information not available.

Section 13 Disposal considerations

EWC: 160504.

13.1 Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

Directive 2008/98/EC (waste)

For the disposal of waste from this material, the hazard characteristics shall be assessed in accordance with Directive 2008/98/EC. Any transboundary shipment must comply with Regulation (EU) 2024/1157.

Hazardous waste classification - Reg. (UE) 1357/2014

HP 3 – Flammable

HP 4 – Irritant — skin irritation and eye damage

HP 5 – Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP 6 – Acute Toxicity

HP 7 – Carcinogenic

HP 13 – Sensitising

HP 14 – Ecotoxic

Section 14 Transport information

14.1 UN number or ID number

ADR / RID	IMDG	IATA
UN 1950	UN 1950	UN 1950

14.2 UN proper shipping name

ADR / RID	AEROSOLS
IMDG	AEROSOLS
IATA	AEROSOLS, FLAMMABLE

14.3 Transport hazard class(es)

	Class	Label	
ADR / RID	2	2.1	
IMDG	2	2.1	

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	Class	Label	
IATA	2	2.1	

14.4 Packing group

ADR / RID	IMDG	IATA

14.5 Environmental hazards

ADR / RID	No	
IMDG	Not marine pollutant	
IATA	No	

14.6 Special precautions for user

ADR / RID			
Hazard identification No. - Kemler		Limited Quantities	1 L
Tunnel restriction code	(D)	Special provisions	190, 327, 344, 625
IMDG			
EmS	F-D, S-U	Limited Quantities	
IATA			
Maximum quantity (Cargo)	150 L	Packaging instructions (Cargo)	203
Maximum quantity (Passengers)	75 L	Packaging instructions (Passengers)	203
Special provisions	A145, A167, A802		

14.7 Maritime transport in bulk according to IMO instruments

Not applicable

Section 15 Regulatory information

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

Seveso Category - Directive 2012/18/EU:

P3b

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

	Restrictions	Registration Number EU
Product restrictions	3, 40	
Contained substance		
	74	
Diphenylmethanediisocyanate, isomers and homologues	56, 74	

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Not applicable

Substances in Candidate List (Art. 59 REACH)

Registration Number EU

On the basis of available data, the product does not contain any SVHC in percentage $\geq$ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)	Authorisation Number	Sunset date	Registration Number EU
None			

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Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Regulation (EU) 2019/1021 - on persistent organic pollutants

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

Notification Art. 45 CLP

The mixture may not have been notified in all EU Member States. In the event of resale in a country other than the one in which it was purchased, contact the supplier to verify any applicable obligations.

Regulation (EU) 2024/590 – Substances that deplete the ozone layer

Annex I. Contains:

None

Annex II. Contains:

None

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)

WGK2 – Hazard to waters

Denmark - MAL code - Executive Order No. 301 of 13 May 1993

n.a.

Additional information according to EC Regulation no. 552/2009 of 22 June 2009:

The use of this product may cause allergic reactions in people already sensitized to diisocyanates. People with 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 a suitable gas filter (e.g. type A1 according to EN 14387) is used.

From 24 August 2023, appropriate training is required before industrial or professional use.

15.2 Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

Section 16 Other information**Text of hazard (H) indications mentioned in section 2-3 of the sheet:**

Acute Tox. 4	Acute toxicity, category 4
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
Carc. 2	Carcinogenicity, category 2
Eye Irrit. 2	Eye irritation, category 2
Flam. Gas 1A	Flammable gas, category 1A
Press. Gas	Gas under pressure
Repr. 2	Reproductive toxicity, category 2
Resp. Sens. 1	Respiratory sensitization, category 1
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2

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Text of hazard (H) indications mentioned in section 2-3 of the sheet:

STOT SE 3	Specific target organ toxicity - single exposure, category 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.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Legend

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EC50: Effective concentration (required to induce a 50% effect)
- EC: Identifier in ESIS (European archive of existing substances)
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

General Bibliography

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I ATP CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II ATP CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III ATP CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV ATP CLP) of the European Parliament

Section 16

General Bibliography

8. Regulation (EU) 944/2013 (V ATP CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI ATP CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII ATP CLP) of the European Parliament
 11. Regulation (EU) 2016/918 (VIII ATP CLP) of the European Parliament
 12. Regulation (EU) 2016/1179 (IX ATP CLP)
 13. Regulation (EU) 2017/776 (X ATP CLP)
 14. Regulation (EU) 2018/669 (XI ATP CLP)
 15. Regulation (EU) 2019/521 (XII ATP CLP)
 16. Delegated Regulation (UE) 2018/1480 (XIII ATP CLP)
 17. Regulation (EU) 2019/1148
 18. Delegated Regulation (EU) 2020/217 (XIV ATP CLP)
 19. Delegated Regulation (EU) 2020/1182 (XV ATP CLP)
 20. Delegated Regulation (EU) 2021/643 (XVI ATP CLP)
 21. Delegated Regulation (EU) 2021/849 (XVII ATP CLP)
 22. Delegated Regulation (EU) 2022/692 (XVIII ATP CLP)
 23. Delegated Regulation (EU) 2023/707
 24. Delegated Regulation (EU) 2023/1434 (XIX ATP CLP)
 25. Delegated Regulation (EU) 2023/1435 (XX ATP CLP)
 26. Delegated Regulation (EU) 2024/197 (XXI ATP CLP)
 27. Delegated Regulation (EU) 2024/2564 (XXII ATP CLP)
 28. Regulation (EU) 2024/2865
 29. Delegated Regulation (EU) 2025/1222 (XXIII ATP CLP)
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- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
 - IFA GESTIS website
 - ECHA website
 - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

Calculation methods for classification

Chemical and physical hazards:
Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards:
Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards:
Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes from the previous revision

This SDS has been prepared with a different software from the one previous revision. The new calculation does not allow us to identify all the differences compared to the previous version. We therefore recommend carefully reviewing all 16 sections of the SDS. We remain available to provide any clarification regarding the content or the changes made compared to the previous version, which is available to professional or industrial users.