

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 26.09.2024 Revision date: 26.09.2024 Supersedes version of: 06.04.2022 Version: 2.1

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

1.1. Product identifier

Product form	Mixture
Trade name	CF I 500
UFI	EYYX-547T-1MN0-S628
Product code	BU Fire Protection Foam
Vaporizer	Aerosol

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

1.2.1. Relevant identified uses

Main use category	Professional use
Industrial/Professional use spec	For professional use only
Use of the substance/mixture	PU installation foams

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier	Department issuing data specification sheet
Hilti Deutschland AG	Hilti AG
Hiltistr. 2	Feldkircherstraße 100
DE 86916 Kaufering	FL 9494 Schaan
Deutschland	Liechtenstein
T +49 8191 90-0 , F +49 8191 90-1122	T +423 234 2111
de.kundenservice@hilti.com	product.compliance-fire.protection@hilti.com

1.4. Emergency telephone number

Emergency number	Emergency CONTACT (24-Hour-Number): GBK GmbH Global Regulatory Compliance +49 (0)6132-84463
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aerosol, Category 1	H222;H229
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 2	H351
Reproductive toxicity, Additional category, Effects on or via lactation	H362
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity – Repeated exposure, Category 2	H373
Hazardous to the aquatic environment – Chronic Hazard, Category 4	H413
Full text of H- and EUH-statements: see section 16	

Adverse physicochemical, human health and environmental effects

No additional information available

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS07

GHS08

Signal word (CLP)

Danger

Contains

4,4'-diphenylmethanediisocyanate, isomeres and homologues; alkanes, C14-17, chloro; chlorinated paraffins, C14-17

Hazard statements (CLP)

H222 - Extremely flammable aerosol.
 H229 - Pressurised container: May burst if heated.
 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.
 H362 - May cause harm to breast-fed children.
 H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (CLP)

H413 - May cause long lasting harmful effects to aquatic life.
 P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 P211 - Do not spray on an open flame or other ignition source.
 P251 - Pressurized container: Do not pierce or burn, even after use.
 P260 - Do not breathe spray.
 P280 - Wear protective gloves, eye protection, protective clothing.
 P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
 As from 24 August 2023 adequate training is required before industrial or professional use.

Extra phrases

2.3. Other hazards

Contains PBT/vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

Component	
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Dimethyl ether (115-10-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
isobutane (75-28-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
butane (106-97-8)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
propane (74-98-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	This substance meets the PBT criteria of REACH regulation, annex XIII This substance meets the vPvB criteria of REACH regulation, annex XIII
halogenated polyetherpolyol (86675-46-9)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Reaction products of phosphoryl trichloride and 2-methyloxirane (TCPP) (1244733-77-4)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

Component	
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
Reaction products of phosphoryl trichloride and 2-methyloxirane (TCPP) (1244733-77-4)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
Dimethyl ether (115-10-6)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
isobutane (75-28-5)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
butane (106-97-8)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
propane (74-98-6)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605
halogenated polyetherpolyol (86675-46-9)	The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
4,4'-diphenylmethanediisocyanate, isomeres and homologues Stoff mit nationalem Arbeitsplatzgrenzwert (DE)	CAS-No.: 9016-87-9 EC-No.: 248-740-5	25 – 60	Acute Tox. 4 (Inhalation), H332 (ATE=1,5 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373
Reaction products of phosphoryl trichloride and 2-methyloxirane (TCPP)	CAS-No.: 1244733-77-4 EC-No.: 807-935-0 REACH-no: 01-2119486772-26	10 – 25	Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Aquatic Chronic 3, H412
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 substance listed on REACH Candidate List (Medium-chain chlorinated paraffins (MCCP)) Stoff mit nationalem Arbeitsplatzgrenzwert (DE); PBT-Stoff; vPvB-Stoff	CAS-No.: 85535-85-9 EC-No.: 287-477-0 EC Index-No.: 602-095-00-X REACH-no: 01-2119519269-33	10 – 25	Lact., H362 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH066
Dimethyl ether (Propellant gas (Aerosol)) Stoff mit nationalem Arbeitsplatzgrenzwert (DE); Stoff, für den ein gemeinschaftlicher Grenzwert für die Exposition am Arbeitsplatz gilt	CAS-No.: 115-10-6 EC-No.: 204-065-8 EC Index-No.: 603-019-00-8 REACH-no: 01-2119472128-37	5 – 25	Flam. Gas 1A, H220 Press. Gas (Comp.), H280
isobutane (Propellant gas (Aerosol)) Stoff mit nationalem Arbeitsplatzgrenzwert (DE)	CAS-No.: 75-28-5 EC-No.: 200-857-2 EC Index-No.: 601-004-00-0 REACH-no: 01-2119485395-27	5 – 25	Flam. Gas 1A, H220 Press. Gas (Comp.), H280
butane (Propellant gas (Aerosol)) Stoff mit nationalem Arbeitsplatzgrenzwert (DE)	CAS-No.: 106-97-8 EC-No.: 203-448-7 EC Index-No.: 601-004-00-0	5 – 25	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
propane (Propellant gas (Aerosol)) Stoff mit nationalem Arbeitsplatzgrenzwert (DE)	CAS-No.: 74-98-6 EC-No.: 200-827-9 EC Index-No.: 601-003-00-5 REACH-no: 01-2119486944-21	5 – 25	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
halogenated polyetherpolyol	CAS-No.: 86675-46-9 EC-No.: 617-903-6 REACH-no: 01-2119472128-37	5 – 25	Acute Tox. 4 (Oral), H302 (ATE=917 mg/kg bodyweight)

Specific concentration limits:

Name	Product identifier	Specific concentration limits
4,4'-diphenylmethanediisocyanate, isomeres and homologues	CAS-No.: 9016-87-9 EC-No.: 248-740-5	(0,1 ≤ C < 100) Resp. Sens. 1, H334 (5 ≤ C < 100) Skin Irrit. 2, H315 (5 ≤ C < 100) Eye Irrit. 2, H319 (5 ≤ C < 100) STOT SE 3, H335

Product subject to CLP Article 1.1.3.7. The disclosure rules of the components is modified in this case.

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Get immediate medical advice/attention.
First-aid measures after skin contact	Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	Call a poison center or a doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting.

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

Symptoms/effects after inhalation	May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Symptoms/effects after skin contact	Irritation. May cause an allergic skin reaction. Causes skin irritation.
Symptoms/effects after eye contact	Eye irritation. Causes serious eye irritation.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide. Sand.
Unsuitable extinguishing media	Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	Extremely flammable aerosol.
Explosion hazard	Pressurised container: May burst if heated.
Hazardous decomposition products in case of fire	Toxic fumes may be released. Vapours may form explosive mixture with air.

5.3. Advice for firefighters

Firefighting instructions	Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe spray. Avoid contact with skin and eyes. Evacuate unnecessary personnel.
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6.1.2. For emergency responders

Protective equipment	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". Equip cleanup crew with proper protection.
Emergency procedures	Ventilate area.

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Mechanically recover the product. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.
Other information	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13. See Section 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	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. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Avoid contact during pregnancy/while nursing. Do not breathe spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. May form flammable/explosive vapour-air mixture. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid breathing spray.
Hygiene measures	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash hands, forearms and face thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	Store in a well-ventilated place. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Keep cool. Keep only in the original container in a cool, well ventilated place away from : Keep container tightly closed.
Incompatible products	Strong bases. Strong acids.
Incompatible materials	Sources of ignition. Direct sunlight.
Storage temperature	5 – 25 °C
Heat and ignition sources	Keep away from heat and direct sunlight. Keep away from ignition sources.
Storage class (LGK, TRGS 510)	LGK 2B - Aerosol dispensers and lighters

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National occupational exposure and biological limit values

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	pMDI (als MDI berechnet)
AGW (OEL TWA)	0,05 mg/m ³ (E)
Peak exposure limitation factor	1;=2=(I)

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); H - hautresorptiv; Sah - Atemwegs- und Hautsensibilisierender Stoff; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 12 - Der Arbeitsplatzgrenzwert gilt in der Regel nur für die Monomeren. Zur Beurteilung von Oligomeren oder Polymeren siehe TRGS 430 "Isocyanate"
Regulatory reference	TRGS900
Dimethyl ether (115-10-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Dimethylether
IOEL TWA	1920 mg/m ³
	1000 ppm
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Dimethylether
AGW (OEL TWA)	1900 mg/m ³
	1000 ppm
Peak exposure limitation factor	8(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission); EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich)
Regulatory reference	TRGS900
isobutane (75-28-5)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Isobutan
AGW (OEL TWA)	2400 mg/m ³
	1000 ppm
Peak exposure limitation factor	4(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900
butane (106-97-8)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Butan
AGW (OEL TWA)	2400 mg/m ³
	1000 ppm
Peak exposure limitation factor	4(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

butane (106-97-8)	
Regulatory reference	TRGS900
propane (74-98-6)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Propan
AGW (OEL TWA)	1800 mg/m ³
	1000 ppm
Peak exposure limitation factor	4(II)
Remark	DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)
Regulatory reference	TRGS900
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Chloralkane, C14-17 (Chlorierte Paraffine C14-17)
AGW (OEL TWA)	6 mg/m ³ (E)
	0,3 ppm (E)
Peak exposure limitation factor	8(II)
Remark	H - hautresorptiv; Y - Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden; 11 - Summe aus Dampf und Aerosolen; AGS - Ausschuss für Gefahrstoffe
Regulatory reference	TRGS900

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:

Gloves. Protective clothing. Safety glasses. Avoid all unnecessary exposure.

Personal protective equipment symbol(s):



CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

8.2.2.1. Eye and face protection

Eye protection:

Chemical goggles or safety glasses

Eye protection			
Type	Field of application	Characteristics	Standard
Safety glasses			EN 166, EN 171

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Wear suitable gloves tested to EN374. Suitable for short-term work or as a splash guard:

Nitrile rubber gloves (> 0.1 mm). In case of permanent product contact:

Hand protection					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0,35		
Disposable gloves	Butyl rubber	6 (> 480 minutes)	0,35		

8.2.2.3. Respiratory protection

Respiratory protection:

Not necessary with sufficient ventilation. Ensure good ventilation of the work station. Open windows during application to ensure natural ventilation.

If the occupational exposure limit is exceeded: Wear appropriate mask. (e.g. gas filter type A1-P2 according to EN 14387)

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

Consumer exposure controls:

Avoid contact during pregnancy/while nursing.

Other information:

Do not eat, drink or smoke during use.

As from 24 August 2023 adequate training is required before industrial or professional use, www.feica.eu/PUinfo



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Colour	Grey.
Appearance	Aerosol.

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Odour	characteristic.
Odour threshold	Not available
Melting point	Not available
Freezing point	Not available
Boiling point	Not available
Flammability	Extremely flammable aerosol, Non flammable.
Explosive properties	Pressurised container: May burst if heated.
Lower explosion limit	1,5 vol %
Upper explosion limit	11 vol %
Flash point	< 0 °C
Auto-ignition temperature	> 350 °C Propellant
Decomposition temperature	Not available
pH	Not available
Viscosity, kinematic	Not available
Solubility	practically insoluble.
Partition coefficient n-octanol/water (Log Kow)	Not available
Vapour pressure	> 500 kPa
Vapour pressure at 50°C	Not available
Density	≤ 1,3 g/cm ³
Relative density	Not available
Relative vapour density at 20°C	Not available
Particle characteristics	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

% of flammable ingredients 60 %

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable aerosol. Pressurised container: May burst if heated.

10.2. Chemical stability

Stable under normal conditions. Not established.

10.3. Possibility of hazardous reactions

Heating may cause a fire or explosion. Not established.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

No additional information available. fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

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

Acute toxicity (oral)	Not classified.
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
LD50 oral rat	> 10000 mg/kg (Rat, Literature study, Oral)
LD50 dermal rabbit	> 5000 mg/kg (Rabbit, Literature study, Dermal)
LD50 dermal	9400 mg/kg
LC50 Inhalation - Rat	0,49 mg/l
isobutane (75-28-5)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value, Inhalation (gases))
butane (106-97-8)	
LC50 Inhalation - Rat [ppm]	276798,8 ppm
propane (74-98-6)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm (15 minutes, Rat, Male / female, Experimental value, Inhalation (gases))
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
LD50 oral rat	> 4000 mg/kg bodyweight (Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 oral	15000 mg/kg
LD50 dermal rabbit	> 13500 mg/kg bodyweight (24 h, Rabbit, Read-across, Dermal)
LC50 Inhalation - Rat	> 48,17 mg/l air (1 h, Rat, Read-across, Inhalation (vapours))
halogenated polyetherpolyol (86675-46-9)	
LD50 oral	917 mg/kg bodyweight
LC50 Inhalation - Rat	> 4900 mg/m ³
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	Not classified
Carcinogenicity	Suspected of causing cancer.
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
IARC group	3 - Not classifiable
Reproductive toxicity	May cause harm to breast-fed children.
STOT-single exposure	May cause respiratory irritation.
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-single exposure	May cause respiratory irritation.
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Not classified
CF I 500	
Vaporizer	Aerosol

11.2. Information on other hazards

No additional information available

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	Not classified.
Hazardous to the aquatic environment, long-term (chronic)	May cause long lasting harmful effects to aquatic life.

4,4'-diphenylmethane-diisocyanate, isomeres and homologues (9016-87-9)	
LC50 - Other aquatic organisms [1]	> 1000 mg/l (96 h, Literature study)
Dimethyl ether (115-10-6)	
LC50 - Fish [1]	> 4100 mg/l (NEN 6504: Water - Determination of toxicity with <i>Poecilia reticulata</i> , 96 h, <i>Poecilia reticulata</i> , Semi-static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 4400 mg/l (NEN 6501: Water - Determination of toxicity with <i>Daphnia magna</i> , 48 h, <i>Daphnia magna</i> , Static system, Fresh water, Experimental value, Lethal)
EC50 96h - Algae [1]	154,9 mg/l (ECOSAR v1.00, Algae, QSAR, Estimated value)
isobutane (75-28-5)	
EC50 96h - Algae [1]	8,57 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
propane (74-98-6)	
EC50 96h - Algae [1]	12 mg/l (ECOSAR v1.00, Algae, Fresh water, QSAR)
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
LC50 - Fish [1]	> 5000 mg/l (Equivalent or similar to OECD 203, 96 h, <i>Alburnus alburnus</i> , Static system, Brackish water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	0,006 mg/l (OECD 202: <i>Daphnia</i> sp. Acute Immobilisation Test, 48 h, <i>Daphnia magna</i> , Static system, Fresh water, Experimental value, GLP)
ErC50 algae	> 3,2 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, <i>Pseudokirchneriella subcapitata</i> , Static system, Fresh water, Experimental value, GLP)
NOEC chronic crustacea	0,0087 mg/l
halogenated polyetherpolyol (86675-46-9)	
LC50 - Fish [1]	> 1000 mg/l (<i>Poecilia reticulata</i>)
EC50 72h - Algae [1]	> 1000 mg/l

12.2. Persistence and degradability

4,4'-diphenylmethane-diisocyanate, isomeres and homologues (9016-87-9)	
Persistence and degradability	Not readily biodegradable in water.
Dimethyl ether (115-10-6)	
Persistence and degradability	Non degradable in the soil. Not readily biodegradable in water.
isobutane (75-28-5)	
Persistence and degradability	Readily biodegradable in water.
propane (74-98-6)	
Persistence and degradability	Readily biodegradable in water.
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
Persistence and degradability	Not readily biodegradable in the soil. Not readily biodegradable in water.

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

12.3. Bioaccumulative potential

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
BCF - Fish [1]	268,1 l/kg (BCFBAF v3.01, Estimated value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	10,46 (Calculated, KOWWIN)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Dimethyl ether (115-10-6)	
Partition coefficient n-octanol/water (Log Pow)	0,1 (Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
isobutane (75-28-5)	
Partition coefficient n-octanol/water (Log Pow)	1,09 – 2,8 (Experimental value, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
propane (74-98-6)	
Partition coefficient n-octanol/water (Log Pow)	1,1 – 2,8 (Experimental value, 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
BCF - Fish [1]	6660 – 9140 l/kg (OECD 305: Bioconcentration: Flow-Through Fish Test, 35 day(s), Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	4,7 – 8,3 (Experimental value, Equivalent or similar to OECD 117)
Bioaccumulative potential	High potential for bioaccumulation (BCF > 5000).

12.4. Mobility in soil

4,4'-diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	9,078 – 10,597 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Adsorbs into the soil.
Dimethyl ether (115-10-6)	
Surface tension	No data available in the literature
Ecology - soil	Not applicable (gas).
isobutane (75-28-5)	
Surface tension	No data available in the literature
Ecology - soil	Not applicable (gas).
propane (74-98-6)	
Surface tension	No data available in the literature
Ecology - soil	Not applicable (gas).
alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	5 – 5,2 (log Koc, Experimental value)

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

alkanes, C14-17, chloro; chlorinated paraffins, C14-17 (85535-85-9)

Ecology - soil

Low potential for mobility in soil.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods

Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations

After curing, the product can be disposed of with household waste. . Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Ecological information

Avoid release to the environment.

European List of Waste (LoW, EC 2000/532)

08 04 09* - waste adhesives and sealants containing organic solvents or other dangerous substances

08 05 01* - waste isocyanates

HP Code

HP3 - "Flammable:"

– flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and ≤ 75 °C;

– flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air;

– flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction;

– flammable gaseous waste: gaseous waste which is flammable in air at 20 °C and a standard pressure of 101.3 kPa;

– water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities;

– other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.

HP5 - "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.

HP6 - "Acute Toxicity:" waste which can cause acute toxic effects following oral or dermal administration, or inhalation exposure.

HP7 - "Carcinogenic:" waste which induces cancer or increases its incidence

HP4 - "Irritant – skin irritation and eye damage:" waste which on application can cause skin irritation or damage to the eye.

HP13 - "Sensitising:" waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.

HP14 - "Ecotoxic:" waste which presents or may present immediate or delayed risks for one or more sectors of the environment






SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1950	UN 1950	UN 1950	UN 1950	UN 1950
14.2. UN proper shipping name				
AEROSOLS	AEROSOLS	Aerosols, flammable	AEROSOLS	AEROSOLS
Transport document description				
UN 1950 AEROSOLS, 2.1, (D)	UN 1950 AEROSOLS, 2.1	UN 1950 Aerosols, flammable, 2.1	UN 1950 AEROSOLS, 2.1	UN 1950 AEROSOLS, 2.1
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	5F
Special provisions (ADR)	190, 327, 344, 625
Limited quantities (ADR)	1I
Packing instructions (ADR)	P207, LP02
Mixed packing provisions (ADR)	MP9
Transport category (ADR)	2
Tunnel restriction code (ADR)	D

Transport by sea

Special provisions (IMDG)	63, 190, 277, 327, 344, 959
Limited quantities (IMDG)	SP277
Packing instructions (IMDG)	P207, LP02
EmS-No. (Fire)	F-D
EmS-No. (Spillage)	S-U
Stowage category (IMDG)	None
MFAG-No	126

Air transport

PCA packing instructions (IATA)	203
PCA max net quantity (IATA)	75kg
CAO packing instructions (IATA)	203
Special provisions (IATA)	A145, A167, A802

Inland waterway transport

Classification code (ADN)	5F
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CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Special provisions (ADN)	19, 327, 344, 625
Limited quantities (ADN)	1 L
Excepted quantities (ADN)	E0
Equipment required (ADN)	PP, EX, A
Ventilation (ADN)	VE01, VE04
Number of blue cones/lights (ADN)	1

Rail transport

Special provisions (RID)	190, 327, 344, 625
Limited quantities (RID)	1L
Packing instructions (RID)	P207, LP02

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	Applicable on
3(a)	CF I 500
3(b)	CF I 500 ; alkanes, C14-17, chloro; chlorinated paraffins, C14-17 ; 4,4'-diphenylmethanediisocyanate, isomeres and homologues ; Reaction products of phosphoryl trichloride and 2-methyloxirane (TCPP) ; halogenated polyetherpolyol
3(c)	CF I 500 ; alkanes, C14-17, chloro; chlorinated paraffins, C14-17
40.	butane ; Dimethyl ether ; propane ; isobutane
56.	4,4'-diphenylmethanediisocyanate, isomeres and homologues
56(a)	4,4'-diphenylmethanediisocyanate, isomeres and homologues
74.	CF I 500 ; 4,4'-diphenylmethanediisocyanate, isomeres and homologues

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains substance(s) listed on the REACH Candidate List in concentrations $\geq 0.1\%$ or SCL: Medium-chain chlorinated paraffins (MCCP) (EC 287-477-0, CAS 85535-85-9)

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Water hazard class (WGK)

WGK 1, Slightly hazardous to water (Classification according to AwSV, Annex 1).

Hazardous Incident Ordinance (12. BImSchV)

Is not subject to the Hazardous Incident Ordinance (12. BImSchV)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes			
Section	Changed item	Change	Comments
			general update
8.2.2.		Modified	
15		Modified	
16		Modified	

Abbreviations and acronyms:	
CAS-No.	Chemical Abstract Service number
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disrupting properties
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IOELV	Indicative Occupational Exposure Limit Value

CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Abbreviations and acronyms:	
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
N.O.S.	Not Otherwise Specified
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class
VOC	Volatile Organic Compounds
SDS	Safety Data Sheet
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
PNEC	Predicted No-Effect Concentration
PBT	Persistent Bioaccumulative Toxic
OEL	Occupational Exposure Limit
OECD	Organisation for Economic Co-operation and Development
COD	Chemical oxygen demand (COD)
ThOD	Theoretical oxygen demand (ThOD)
TRGS	Technical Rules for Hazardous Substances
TLM	Median Tolerance Limit
STP	Sewage treatment plant

Full text of H- and EUH-statements:	
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aerosol 1	Aerosol, Category 1
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment – Chronic Hazard, Category 4
Carc. 2	Carcinogenicity, Category 2
EUH066	Repeated exposure may cause skin dryness or cracking.
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Gas 1A	Flammable gases, Category 1A
H220	Extremely flammable gas.



CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Full text of H- and EUH-statements:	
H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.
Lact.	Reproductive toxicity, Additional category, Effects on or via lactation
Press. Gas (Comp.)	Gases under pressure : Compressed gas
Press. Gas (Liq.)	Gases under pressure : Liquefied gas
Resp. Sens. 1	Respiratory sensitisation, Category 1
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Aerosol 1	H222;H229	On basis of test data
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Resp. Sens. 1	H334	Calculation method
Skin Sens. 1	H317	Calculation method
Carc. 2	H351	Calculation method
Lact.	H362	Calculation method
STOT SE 3	H335	Calculation method
STOT RE 2	H373	Calculation method



CF I 500

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Aquatic Chronic 4	H413	Expert judgement

SDS_EU_Hilti

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.