FLAMMADUR® E 292 H

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 16/04/2026 Revision date: 16/04/2026 Version: 1.00

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

1.1. Product identifier

Product form : Mixture
Trade name : FLAMMADUR® E 292 H
UFI : VY00-R0CU-Y00Q-3XR5

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

1.2.1. Relevant identified uses

Main use category : Industrial use
Use of the substance/mixture : Measures against fire
Two component coating
Curing agent
production of polyurethanes

1.2.2. Uses advised against

Restrictions on use : For professional use only

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier
KuhnOdice Germany GmbH
Glüsinger Straße 86
DE 21217 Seevetal
Germany
T +49 2753 5945-0

Email competent person
sds@kft.de

1.4. Emergency telephone number

Emergency number : +353 1 443 4289 (+61 3 9573 3188) (24 h/365 d)

Country/Area	Organisation	Emergency number
Ireland	National Poisons Information Centre. Beaumont Hospital. PO Box 1297. Beaumont Road 9 Dublin.	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Acute toxicity (inhalation:dust,mist) Category 4	H332
Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Respiratory sensitisation, Category 1	H334
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 2	H351
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	H335
Specific target organ toxicity – Repeated exposure, Category 2	H373

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

Adverse physicochemical, human health and environmental effects

Suspected of causing cancer. May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled). Harmful if inhaled. May cause an allergic skin reaction. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07 GHS08

Signal word (CLP) : Danger

Contains : diphenylmethanediisocyanate, isomeres and homologues; 4,4'-methylenediphenyl diisocyanate; o-(p-isocyanatobenzyl)phenyl isocyanate; 2,2'-methylenediphenyl diisocyanate

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H332 - Harmful if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.
H373 - May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P261 - Avoid breathing mist, vapours.
P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER, doctor.

EUH-statements : EUH204 - Contains isocyanates. May produce an allergic reaction.

Extra phrases : Persons already sensitised to diisocyanates may develop allergic reactions when using this product.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.
As from 24 August 2023 adequate training is required before industrial or professional use.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	diphenylmethanediisocyanate, isomeres and homologues (9016-87-9), 4,4'-methylenediphenyl diisocyanate (101-68-8), o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1), 2,2'-methylenediphenyl diisocyanate (2536-05-2)(1)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	diphenylmethanediisocyanate, isomeres and homologues (9016-87-9), 4,4'-methylenediphenyl diisocyanate (101-68-8), o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1), 2,2'-methylenediphenyl diisocyanate (2536-05-2)(1)

(1) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

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	
Substance(s) 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	diphenylmethanediisocyanate, isomeres and homologues (9016-87-9), 4,4'-methylenediphenyl diisocyanate (101-68-8), o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1), 2,2'-methylenediphenyl diisocyanate (2536-05-2)(¹)

(¹) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
diphenylmethanediisocyanate, isomeres and homologues (Note C)(Note 2)	CAS-No.: 9016-87-9 EC Index-No.: 615-005-00-9	≥ 65 - < 90	Acute Tox. 4 (Inhalation:dust,mist), 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 EUH204
4,4'-methylenediphenyl diisocyanate substance with national workplace exposure limit(s) (IE) (Note C)(Note 2)	CAS-No.: 101-68-8 EC-No.: 202-966-0 EC Index-No.: 615-005-00-9 REACH-no: 01-2119457014-47-xxxx	≥ 10 – < 20	Acute Tox. 4 (Inhalation:dust,mist), 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 EUH204
o-(p-isocyanatobenzyl)phenyl isocyanate (Note C)(Note 2)	CAS-No.: 5873-54-1 EC-No.: 227-534-9 EC Index-No.: 615-005-00-9 REACH-no: 01-2119480143-45-xxxx	≥ 10 – < 20	Acute Tox. 4 (Inhalation:dust,mist), 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 EUH204

2,2'-methylenediphenyl diisocyanate (Note C)(Note 2)	CAS-No.: 2536-05-2 EC-No.: 219-799-4 EC Index-No.: 615-005-00-9 REACH-no: 01-2119927323-43-xxxx	< 0.1	Acute Tox. 4 (Inhalation:dust,mist), 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 EUH204

Specific concentration limits:		
Name	**Product identifier**	**Specific concentration limits (%)**
diphenylmethanediisocyanate, isomeres and homologues	CAS-No.: 9016-87-9 EC Index-No.: 615-005-00-9	(0.1 ≤ C ≤ 100) Resp. Sens. 1; H334 (5 ≤ C ≤ 100) Eye Irrit. 2; H319 (5 ≤ C ≤ 100) Skin Irrit. 2; H315 (5 ≤ C ≤ 100) STOT SE 3; H335
4,4'-methylenediphenyl diisocyanate	CAS-No.: 101-68-8 EC-No.: 202-966-0 EC Index-No.: 615-005-00-9 REACH-no: 01-2119457014-47-xxxx	(0.1 ≤ C < 100) Resp. Sens. 1; H334 (5 ≤ C < 100) STOT SE 3; H335 (5 ≤ C < 100) Skin Irrit. 2; H315 (5 ≤ C < 100) Eye Irrit. 2; H319
o-(p-isocyanatobenzyl)phenyl isocyanate	CAS-No.: 5873-54-1 EC-No.: 227-534-9 EC Index-No.: 615-005-00-9 REACH-no: 01-2119480143-45-xxxx	(0.1 ≤ C ≤ 100) Resp. Sens. 1; H334 (5 ≤ C ≤ 100) STOT SE 3; H335 (5 ≤ C ≤ 100) Skin Irrit. 2; H315 (5 ≤ C ≤ 100) Eye Irrit. 2; H319
2,2'-methylenediphenyl diisocyanate	CAS-No.: 2536-05-2 EC-No.: 219-799-4 EC Index-No.: 615-005-00-9 REACH-no: 01-2119927323-43-xxxx	(0.1 ≤ C ≤ 100) Resp. Sens. 1; H334 (5 ≤ C ≤ 100) STOT SE 3; H335 (5 ≤ C ≤ 100) Skin Irrit. 2; H315 (5 ≤ C ≤ 100) Eye Irrit. 2; H319

Note 2: The concentration of isocyanate stated is the percentage by weight of the free monomer calculated with reference to the total weight of the mixture.

Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

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 general : IF exposed or concerned: Get medical advice/attention.

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.

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.

Self protection of the first-aider : First-aiders should pay attention to their own protection and use the recommended personal protective equipment (see section 8).

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.
Symptoms/effects after skin contact : May cause an allergic skin reaction. Irritation.
Symptoms/effects after eye contact : 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 : Use extinguishing media appropriate for surrounding fire. Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon monoxide. Carbon dioxide. Nitrogen oxides.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information : Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

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. Do not breathe mist, vapours. Avoid contact with skin and eyes.

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".

6.2. Environmental precautions

Avoid sub-soil penetration. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Notify authorities if product enters sewers or public waters.
Other information : Disposal must be done according to official regulations.

6.4. Reference to other sections

Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, vapours. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed.

Storage temperature : 10 – 50 °C

Information about storage in one common storage facility : Keep away from food, drink and animal feeding stuffs.

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'-methylenediphenyl diisocyanate (101-68-8)	
Ireland - Occupational Exposure Limits	
Local name	4,4’-Methylene-diphenyl diisocyanate (as —NCO) [MDI]
OEL TWA	0.005 ppm
Remark	Advisory OELV (Advisory Occupational Exposure Limit Values), Sens (In the workplace, respiratory or dermal exposures to sensitising agents may occur. Sensitisers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The “sens” notation alone does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitisers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE))
Regulatory reference	Chemical Agents Code of Practice 2024

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

4,4'-methylenediphenyl diisocyanate (101-68-8)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	0.1 mg/m³
Long-term - local effects, inhalation	0.05 mg/m³

DNEL/DMEL (General population)	
Acute - local effects, inhalation	0.05 mg/m³
Long-term - local effects, inhalation	0.025 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	3.7 µg/L
PNEC aqua (marine water)	0.37 µg/L
PNEC aqua (intermittent, freshwater)	37 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	11.7 mg/kg dwt
PNEC sediment (marine water)	1.17 mg/kg dwt
PNEC (Soil)	
PNEC soil	2.33 mg/kg dwt

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	0.1 mg/m³
Long-term - local effects, inhalation	0.05 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	3.7 µg/L
PNEC aqua (marine water)	0.37 µg/L
PNEC aqua (intermittent, freshwater)	37 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	11.7 mg/kg dwt
PNEC sediment (marine water)	1.17 mg/kg dwt
PNEC (Soil)	
PNEC soil	2.33 mg/kg dwt

2,2'-methylenediphenyl diisocyanate (2536-05-2)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	50 mg/kg bodyweight/day
Acute - systemic effects, inhalation	0.1 mg/m³
Acute - local effects, dermal	28.7 mg/cm²
Acute - local effects, inhalation	0.1 mg/m³
Long-term - systemic effects, inhalation	0.05 mg/m³
Long-term - local effects, inhalation	0.05 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	25 mg/kg bodyweight
Acute - systemic effects, inhalation	0.05 mg/m³
Acute - systemic effects, oral	20 mg/kg bodyweight
Acute - local effects, dermal	17.2 mg/cm²
Acute - local effects, inhalation	0.05 mg/m³

Long-term - systemic effects, inhalation	0.025 mg/m³
Long-term - local effects, inhalation	0.025 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	1 mg/l
PNEC aqua (marine water)	0.1 mg/l
PNEC (Soil)	
PNEC soil	1 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1 mg/l

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

8.2.2.1. Eye and face protection

Eye protection:
Wear closed safety glasses. ISO 16321-1

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing. EN ISO 13688. EN 13034

Hand protection:
Chemically resistant protective gloves. ISO 374-1. Butyl rubber. Nitrile rubber. Chloroprene rubber. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear. In case of repeated or prolonged contact wear gloves

8.2.2.3. Respiratory protection

Respiratory protection:
Wear respiratory protection. EN 143. Breathing apparatus with filter. A2-P2. EN 14387. Gas filters. A1. . Breathing equipment is only to be used in order to handle the residual risk of short term jobs if all other risk minimizing measures have been carried out e.g. retention and/or local exhaust

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

Other information:
Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Always wash hands after handling the product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : Brown.

Odour	:	earthy. musty.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	> 300 °C DIN 53171
Flammability	:	Not available
Explosive properties	:	Product is not explosive.
Oxidising properties	:	Non oxidizing.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	≈ 229 °C DIN EN 22719
Auto-ignition temperature	:	> 500 °C DIN 51794
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	117.886 mm²/s
Viscosity, dynamic	:	145 mPa·s (20 °C), DIN 53019
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	≈ 1.23 g/cm³ (20 °C), DIN 51757
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

No additional information available

9.2.2. Other safety characteristics

VOC content	:	0 %
Pour point	:	-30 °C ISO 3016

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Polymerization: 200 °C, Toxic fumes are released (CO, CO2).

10.3. Possibility of hazardous reactions

Exothermic reaction on contact with : Amines, alcohols. Reacts slowly with water, generate gases (CO2) and overpressure : rupture containers.

10.4. Conditions to avoid

No additional information available.

10.5. Incompatible materials

No additional information available.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (dermal) : Not classified (Based on available data, the classification criteria are not met)

Acute toxicity (inhalation) : Inhalation:dust,mist: Harmful if inhaled.

FLAMMADUR® E 292 H	
ATE CLP (dust,mist)	1.5 mg/l/4h

diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
ATE CLP (dust,mist)	1.5 mg/l/4h

4,4'-methylenediphenyl diisocyanate (101-68-8)	
ATE CLP (dust,mist)	1.5 mg/l/4h

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
ATE CLP (dust,mist)	1.5 mg/l/4h

2,2'-methylenediphenyl diisocyanate (2536-05-2)	
ATE CLP (dust,mist)	1.5 mg/l/4h

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 (Based on available data, the classification criteria are not met)

Carcinogenicity : Suspected of causing cancer.

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)

STOT-single exposure : May cause respiratory irritation.

diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-single exposure	May cause respiratory irritation.

4,4'-methylenediphenyl diisocyanate (101-68-8)	
STOT-single exposure	May cause respiratory irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
STOT-single exposure	May cause respiratory irritation.

2,2'-methylenediphenyl diisocyanate (2536-05-2)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
STOT-repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

4,4'-methylenediphenyl diisocyanate (101-68-8)	
STOT-repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
STOT-repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

2,2'-methylenediphenyl diisocyanate (2536-05-2)	
STOT-repeated exposure	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

FLAMMADUR® E 292 H	
Viscosity, kinematic	117.886 mm²/s

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

No additional information available

11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short–term (acute) : Not classified (Based on available data, the classification criteria are not met)

Hazardous to the aquatic environment, long–term (chronic) : Not classified (Based on available data, the classification criteria are not met)

12.2. Persistence and degradability

FLAMMADUR® E 292 H	
Persistence and degradability	The product has not been tested.

diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Persistence and degradability	The product is not biodegradable.
Biodegradation	0 % (28 d; (OECD 302C method))

4,4'-methylenediphenyl diisocyanate (101-68-8)	
Persistence and degradability	The product is not biodegradable.
Biodegradation	0 % (28 d; (OECD 302C method))

o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
Persistence and degradability	The product is not biodegradable.
Biodegradation	0 % (28 d; (OECD 302C method))

2,2'-methylenediphenyl diisocyanate (2536-05-2)	
Persistence and degradability	The product is not biodegradable.
Biodegradation	0 % (28 d; (OECD 302C method))

12.3. Bioaccumulative potential

FLAMMADUR® E 292 H	
Bioaccumulative potential	The product has not been tested.

diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Bioconcentration factor (BCF REACH)	200 (28 d; Cyprinus carpio; (OECD 305 method))

Partition coefficient n-octanol/water (Log Pow)	4.51 (20 °C; (OECD 117 method))
Bioaccumulative potential	Bioaccumulation unlikely.
4,4'-methylenediphenyl diisocyanate (101-68-8)	
Bioconcentration factor (BCF REACH)	200 (28 d; Cyprinus carpio; (OECD 305 method))
Partition coefficient n-octanol/water (Log Pow)	4.51 (20 °C; (OECD 117 method))
Bioaccumulative potential	Bioaccumulation unlikely.
o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
Bioconcentration factor (BCF REACH)	200 (28 d; Cyprinus carpio; (OECD 305 method))
Partition coefficient n-octanol/water (Log Pow)	4.51 (20 °C; (OECD 117 method))
Bioaccumulative potential	Bioaccumulation unlikely.
2,2'-methylenediphenyl diisocyanate (2536-05-2)	
Bioconcentration factor (BCF REACH)	200 (28 d; Cyprinus carpio; (OECD 305 method))
Partition coefficient n-octanol/water (Log Pow)	4.51 (20 °C; (OECD 117 method))
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

FLAMMADUR® E 292 H	
Mobility in soil	The product has not been tested
diphenylmethanediisocyanate, isomeres and homologues (9016-87-9)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.5 (20 °C)
Ecology - soil	No data available.
4,4'-methylenediphenyl diisocyanate (101-68-8)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.5 (20 °C)
Ecology - soil	No data available.
o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.5 (20 °C)
Ecology - soil	No data available.
2,2'-methylenediphenyl diisocyanate (2536-05-2)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.5 (20 °C)
Ecology - soil	No data available.

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	diphenylmethanediisocyanate, isomeres and homologues (9016-87-9), 4,4'-methylenediphenyl diisocyanate (101-68-8), o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1), 2,2'-methylenediphenyl diisocyanate (2536-05-2)(1)

Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	diphenylmethanediisocyanate, isomeres and homologues (9016-87-9), 4,4'-methylenediphenyl diisocyanate (101-68-8), o-(p-isocyanatobenzyl)phenyl isocyanate (5873-54-1), 2,2'-methylenediphenyl diisocyanate (2536-05-2)(1)

(1) Substance(s) in concentration below 0.1 % and displayed on a voluntary basis

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 : Disposal must be done according to official regulations. European waste catalogue. Do not discharge into drains or the environment. Do not dispose of with domestic waste.

Product/Packaging disposal recommendations : Recycle or dispose of in compliance with current legislation.

European List of Waste (LoW, EC 2000/532) : 08 04 09* - waste adhesives and sealants containing organic solvents or other dangerous substances

HP Code : 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.

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated for transport				
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

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

Other information, restriction and prohibition regulations : Take note of Directive 94/33/EC on the protection of young people at work. Take note of Directive 92/85/EC on the safety and health of pregnant workers at work.

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	**Applicable on**
3(b)	FLAMMADUR® E 292 H
56(a)	4,4'-methylenediphenyl diisocyanate
56(b)	o-(p-isocyanatobenzyl)phenyl isocyanate
56(c)	2,2'-methylenediphenyl diisocyanate; diphenylmethane-2,2'-diisocyanate

REACH Annex XIV (Authorisation List)

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

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

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 (2024/590)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)
Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

VOC Directive (2004/42)

VOC content : 0 %
Decopaint Directive (2004/42/EC) - Annex II : A/j (Paints and Varnishes - Two-pack reactive performance coatings for specific end use such as floors)
Maximum allowed concentration : 500 g/l VOC
Maximum content of VOC : 0.00 g/l VOC

Explosives Precursors Regulation (EU 2019/1148)

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

Drug Precursors Regulation (EC 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

Ireland

National regulations : Refer to S.I. No. 299/2007 (Safety, Health and Welfare at Work (General Application) Regulations 2007) on the protection of young people at work (Art. 143-146).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
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
CAS-No.	Chemical Abstracts Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EWC	European waste catalogue
EC50	Median effective concentration
EC-No.	European Community number
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TLM	Median Tolerance Limit
UFI	Unique Formula Identifier
vPvB	Very Persistent and Very Bioaccumulative

Data sources : MSDSs of the suppliers. Information provided by the manufacturer. European Chemicals Agency, http://echa.europa.eu/.

Department issuing data specification sheet: : KFT Chemieservice GmbH
Im Leuschnerpark 3
D-64347 Griesheim

Phone: +49 69 305 34 700
Fax: +49 69 305 86 500
SDS Service: +49 69 305 34 740

Full text of H- and EUH-statements:	
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Carc. 2	Carcinogenicity, Category 2
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
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
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H373	May cause damage to organs (respiratory system) through prolonged or repeated exposure (if inhaled).
EUH204	Contains isocyanates. May produce an allergic reaction.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Acute Tox. 4 (Inhalation:dust,mist)	H332	Calculation method
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
STOT SE 3	H335	Calculation method
STOT RE 2	H373	Calculation method

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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.