FLAMMADUR® E 711

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 711
UFI : 4110-8028-9007-S9A7

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
Casting compound (conductive)
Epoxy resin

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]

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Reproductive toxicity, Category 1B	H360F
Specific target organ toxicity – Repeated exposure, Category 2	H373
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

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

Adverse physicochemical, human health and environmental effects

May damage fertility.. May cause damage to organs (nervous system) through prolonged or repeated exposure. May cause an allergic skin reaction. Causes skin irritation. Causes serious eye irritation. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Contains : oxirane, mono[(C12-14-alkyloxy)methyl] derivs.; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane; silver powder; bis-[4-(2,3-epoxipropoxi)phenyl]propane

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H360F - May damage fertility.
H373 - May cause damage to organs (nervous system) through prolonged or repeated exposure.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P261 - Avoid breathing mist, vapours, spray.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P391 - Collect spillage.

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	Hydrocarbons, C9, aromatics (128601-23-0; 128601-23-0), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, silver powder (7440-22-4), bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Hydrocarbons, C9, aromatics (128601-23-0; 128601-23-0), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, silver powder (7440-22-4), bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)

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	silver powder (7440-22-4), bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, Hydrocarbons, C9, aromatics (128601-23-0; 128601-23-0)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
silver powder substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit	CAS-No.: 7440-22-4 EC-No.: 231-131-3 EC Index-No.: 047-005-00-4 REACH-no: 01-2119555669-21-xxxx	≥ 25 – < 50	Repr. 2, H361f STOT RE 2, H373 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)
bis-[4-(2,3-epoxipropoxi)phenyl]propane	CAS-No.: 1675-54-3 EC-No.: 216-823-5 EC Index-No.: 603-074-00-8 REACH-no: 01-2119456619-26-xxxx	≥ 10 - < 25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	CAS-No.: 68609-97-2 EC-No.: 271-846-8 EC Index-No.: 603-103-00-4 REACH-no: 01-2119485289-22-xxxx	≥ 2.5 – < 5	Skin Irrit. 2, H315 Skin Sens. 1, H317 Repr. 1B, H360F
Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	EC-No.: 701-263-0 REACH-no: 01-2119454392-40-xxxx	≥ 2.5 – < 5	Skin Irrit. 2, H315 Skin Sens. 1A, H317 Aquatic Chronic 2, H411
Hydrocarbons, C9, aromatics	CAS-No.: 128601-23-0; 128601-23-0 EC-No.: 918-668-5 REACH-no: 01-2119455851-35-xxxx	≥ 2.5 – < 5	Flam. Liq. 3, H226 STOT SE 3, H336 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066

Specific concentration limits:		
Name	**Product identifier**	**Specific concentration limits (%)**
bis-[4-(2,3-epoxipropoxi)phenyl]propane	CAS-No.: 1675-54-3 EC-No.: 216-823-5 EC Index-No.: 603-074-00-8 REACH-no: 01-2119456619-26-xxxx	(5 ≤ C ≤ 100) Skin Irrit. 2; H315 (5 ≤ C ≤ 100) Eye Irrit. 2; H319

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.

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 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.

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. Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe mist, vapours, spray.

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

Notify authorities if product enters sewers or public waters. Avoid sub-soil penetration. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

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, spray. 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. Separate working clothes from town clothes. Launder separately. 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.

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

silver powder (7440-22-4)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Silver, metallic
IOEL TWA	0.1 mg/m³
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Ireland - Occupational Exposure Limits	
Local name	Silver (metallic)
OEL TWA	0.1 mg/m³
Remark	IOELV (Indicative Occupational Exposure Limit Values)
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

Hydrocarbons, C9, aromatics (128601-23-0)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	12.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	151 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	7.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	32 mg/m³
Long-term - systemic effects, dermal	7.5 mg/kg bodyweight/day

oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0.75 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0.49 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	50 µg/kg bodyweight/day
Long-term - systemic effects, inhalation	87 µg/m³
Long-term - systemic effects, dermal	89 µg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	1.12 mg/l
PNEC aqua (marine water)	0.112 mg/l
PNEC aqua (intermittent, freshwater)	0.072 mg/l
PNEC aqua (intermittent, marine water)	0.0072 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	1.05 mg/kg dwt
PNEC sediment (marine water)	0.105 mg/kg dwt
PNEC (Soil)	
PNEC soil	20 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
DNEL/DMEL (Workers)	
Acute - local effects, dermal	8.3 µg/cm²
Long-term - systemic effects, dermal	104.15 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	29.39 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	6.25 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	8.7 mg/m³
Long-term - systemic effects, dermal	62.5 mg/kg bodyweight/day

PNEC (Water)	
PNEC aqua (freshwater)	0.003 mg/l
PNEC aqua (marine water)	0.0003 mg/l
PNEC aqua (intermittent, freshwater)	0.025 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.294 mg/kg dwt
PNEC sediment (marine water)	0.029 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.237 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

silver powder (7440-22-4)	
PNEC (Water)	
PNEC aqua (freshwater)	0.04 µg/L
PNEC aqua (marine water)	0.86 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	438.13 mg/kg dwt
PNEC sediment (marine water)	438.13 mg/kg dwt
PNEC (Soil)	
PNEC soil	1.41 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	0.025 mg/l

bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0.75 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	4.93 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0.87 mg/m³
Long-term - systemic effects, dermal	89.3 µg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.006 mg/l
PNEC aqua (marine water)	0.001 mg/l
PNEC aqua (intermittent, freshwater)	0.018 mg/l
PNEC aqua (intermittent, marine water)	0.002 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.341 mg/kg dwt
PNEC sediment (marine water)	0.034 mg/kg dwt

PNEC (Soil)	
PNEC soil	0.065 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	11 mg/kg food
PNEC (STP)	
PNEC sewage treatment plant	10 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. Nitrile 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

8.2.2.3. Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. EN 143. Breathing apparatus with filter. A2/P3. . 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	:	Light grey.
Appearance	:	Viscous liquid.
Odour	:	characteristic.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available

Boiling point	:	> 200 °C
Flammability	:	Not self-igniting
Explosive properties	:	Product is not explosive.
Oxidising properties	:	Non oxidizing.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	Not available
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	≈ 20512.821 mm²/s
Viscosity, dynamic	:	≈ 40000 mPa·s (20 °C)
Solubility	:	Water: Insoluble
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	1.95 g/cm³ (20 °C)
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 : 3 – 4 %

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

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

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

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)

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

Reproductive toxicity : May damage fertility.

oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	
NOAEL (animal/male, F0/P)	40 mg/kg bodyweight/day
NOAEL (animal/female, F0/P)	40 mg/kg bodyweight/day
NOAEL (animal/male, F1)	40 mg/kg bodyweight/day
NOAEL (animal/female, F1)	40 mg/kg bodyweight/day

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)

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

silver powder (7440-22-4)	
LOAEL (oral, rat, 90 days)	125 mg/kg bodyweight/day (OECD 408 method)
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.515 mg/m³ (Aerosol; (OECD 413 method))
NOAEL (oral, rat, 90 days)	250 mg/kg bodyweight/day (OECD 422 method)
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.133 mg/m³ (Aerosol; (OECD 413 method))
STOT-repeated exposure	May cause damage to organs (nervous system) through prolonged or repeated exposure.
NOEC, Chronic, Inhalation, human	> 3 mg/m³ (Calculation method)

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

FLAMMADUR® E 711	
Viscosity, kinematic	≈ 20512.821 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

Ecology - general : Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long–term (chronic) : Very toxic to aquatic life with long lasting effects.

Hydrocarbons, C9, aromatics (128601-23-0)	
LC50 - Fish [1]	9.2 mg/l (96 h; Oncorhynchus mykiss; (OECD 203 method))
EC50 - Crustacea [1]	3.2 mg/l (48 h; Daphnia magna; (OECD 202 method))
ErC50 algae	2.9 mg/l (72 h; Raphidocelis subcapitata; (OECD 201 method))
NOEC chronic fish	0.34 mg/l (60 d; EL10; Oncorhynchus mykiss; Quantitative structure-activity relationship (QSAR))

NOEC chronic crustacea	0.59 mg/l (21 d; EL10; Daphnia magna; Quantitative structure-activity relationship (QSAR))
NOEC chronic algae	1 mg/l (72 h; Raphidocelis subcapitata; (OECD 201 method))

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
LC50 - Fish [1]	2.54 mg/l (96 h; (OECD 203 method))
EC50 - Crustacea [1]	2.55 mg/l (48 h; Daphnia magna; (OECD 202 method))
ErC50 algae	1.8 mg/l (72 h; Pseudokirchneriella subcapitata; (OECD 201 method))
NOEC chronic crustacea	0.3 mg/l (21 d; Daphnia magna; (OECD 211 method))

silver powder (7440-22-4)	
LC50 - Fish [1]	1.2 µg/L (96 h; Pimephales promelas)
EC50 - Crustacea [1]	0.22 µg/l (48 h; Daphnia magna)
EC50 72h algae	2.52 µg/L (72h; Raphidocelis subcapitata ;(OECD 201 method))
NOEC chronic fish	1.25 µg/L (73 d, Oncorhynchus mykiss (Rainbow trout), Read-across)
NOEC chronic crustacea	19 µg/L (Americamysis bahia; (ASTM E1191-97 (2003)) ; (ASTM E1241-98 (2003)))

bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
LC50 - Fish [1]	1.75 mg/l (96 h; Oncorhynchus mykiss; (OECD 203 method))
EC50 - Crustacea [1]	2.8 mg/l (48 h; Daphnia magna; (OECD 202 method))
ErC50 algae	> 11 mg/l (72 h; Scenedesmus capricornutum; EPA-660/3-75-009)
NOEC chronic crustacea	0.3 mg/l (21 d; Daphnia magna; (OECD 211 method))
NOEC chronic algae	4.2 mg/l (72 h; Scenedesmus capricornutum; EPA-660/3-75-009)

12.2. Persistence and degradability

FLAMMADUR® E 711	
Persistence and degradability	The product has not been tested.

Hydrocarbons, C9, aromatics (128601-23-0)	
Persistence and degradability	Readily biodegradable, (OECD 301F method).
Chemical oxygen demand (COD)	> 60 % (28 d)

oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	
Persistence and degradability	Readily biodegradable.
Biodegradation	87 % (28 d; (OECD 301F method))

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
Persistence and degradability	Not readily biodegradable.
Biodegradation	≈ 0 % (28 d; Test method EU C.4-E)

silver powder (7440-22-4)	
Persistence and degradability	Not applicable for inorganic substances.

bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
Persistence and degradability	Not readily biodegradable.

Biodegradation	5 % (28 d; (OECD 301F method))

12.3. Bioaccumulative potential

FLAMMADUR® E 711	
Bioaccumulative potential	The product has not been tested.

oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)	
Partition coefficient n-octanol/water (Log Pow)	3.77 (20 °C; (OECD 107 method))

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
BCF - Fish [1]	150 l/kg (Quantitative structure-activity relationship (QSAR))
Partition coefficient n-octanol/water (Log Pow)	3.6 (OECD 117 method)
Bioaccumulative potential	Bioaccumulation unlikely.

silver powder (7440-22-4)	
BCF - Fish [1]	70 (Cyprinus carpio)
Bioaccumulative potential	Not applicable for inorganic substances.

bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
BCF - Other aquatic organisms [1]	31 l/kg (Quantitative structure-activity relationship (QSAR))
Partition coefficient n-octanol/water (Log Pow)	7.1
Bioaccumulative potential	not bioaccumulable.

12.4. Mobility in soil

FLAMMADUR® E 711	
Mobility in soil	The product has not been tested

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.65 (OECD 121 method)
Ecology - soil	Small adsorption.

bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.65 (20 °C; Quantitative structure-activity relationship (QSAR))
Ecology - soil	Product adsorbs little onto the soil.

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	Hydrocarbons, C9, aromatics (128601-23-0; 128601-23-0), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, silver powder (7440-22-4), bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)

Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Hydrocarbons, C9, aromatics (128601-23-0; 128601-23-0), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, silver powder (7440-22-4), bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)

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.

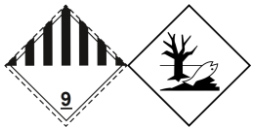
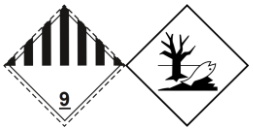
European List of Waste (LoW, EC 2000/532) : 08 04 09* - waste adhesives and sealants containing organic solvents or other dangerous substances

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.
HP4 - “Irritant – skin irritation and eye damage:” waste which on application can cause skin irritation or damage to the eye.
HP10 - “Toxic for reproduction:” waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.
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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver powder ; bis-[4-(2,3-epoxipropoxi)phenyl]propane)	Environmentally hazardous substance, liquid, n.o.s. (silver powder ; bis-[4-(2,3-epoxipropoxi)phenyl]propane)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane)

Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver powder ; bis-[4-(2,3-epoxipropoxi)phenyl]propane), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (silver powder ; bis-[4-(2,3-epoxipropoxi)phenyl]propane), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver ; bis-[4-(2,3-epoxipropoxi)phenyl]propane), 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes EmS-No. (Fire): F-A EmS-No. (Spillage): S-F	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	:	M6
Special provisions (ADR)	:	274, 335, 375, 601, 650
Limited quantities (ADR)	:	5l
Excepted quantities (ADR)	:	E1
Transport category (ADR)	:	3
Hazard identification number (Kemler No.)	:	90
Orange plates	:	
Tunnel restriction code (ADR)	:	-

Transport by sea

Special provisions (IMDG)	:	274, 335, 375, 969
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1

Air transport

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y964
PCA limited quantity max net quantity (IATA)	:	30kgG
PCA packing instructions (IATA)	:	964
PCA max net quantity (IATA)	:	450L
CAO max net quantity (IATA)	:	450L
Special provisions (IATA)	:	A97, A158, A197, A215

Inland waterway transport

Classification code (ADN)	:	M6
Special provisions (ADN)	:	274, 335, 375, 601, 650
Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T

Rail transport

Classification code (RID)	:	M6
Special provisions (RID)	:	274, 335, 375, 601, 650
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Transport category (RID)	:	3
Hazard identification number (RID)	:	90

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(a)	Hydrocarbons, C9, aromatics
3(b)	FLAMMADUR® E 711 ; Hydrocarbons, C9, aromatics ; oxirane, mono[(C12-14-alkyloxy)methyl] derivs. ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane
3(c)	FLAMMADUR® E 711 ; Hydrocarbons, C9, aromatics ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane

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 : 3 – 4 %

Seveso Directive (Disaster Risk Reduction)

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
E1 Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1	100	200

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).
Refer to S.I. No. 299/2007 (Safety, Health and Welfare at Work (General Application) Regulations 2007) on the protection of maternity at work places (Art. 147-152).

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:	
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 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Narcosis
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H360F	May damage fertility.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs (nervous system) through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 1B	H360F	Calculation method
STOT RE 2	H373	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

KFT SDS EU 11 - Version 25.1

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.