AODISI

FIRE TECHNOLOGY

产品资料与销售咨询

PRODUCT DOCUMENTATION & SALES CONTACT

FLAMMADUR ® A 391-Ireland - Safety Data Sheet-en

澳迪斯防火科技（廊坊）有限公司

Aodisi Fire Technology (Langfang) Co., Ltd.

销售及选型联系 / Sales & product enquiries

19931333348

492048031@qq.com

www.gmfireproof.com

以上为销售联系信息，不替代安全数据表中的应急联系电话。
原始技术内容及制造商、检测机构和证书签发信息见后续资料页。

Sales contact only; emergency contacts in safety data sheets remain applicable.
Original technical, manufacturer and certification details follow.

FLAMMADUR® A 391

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® A 391
UFI : 0T10-T08U-100P-QCJT

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 casting resin
polyol Component
A Component
production of polyurethanes
Sealing

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]

Endocrine disruptor for the environment, Category 1	EUH430
Very persistent and very bioaccumulative	EUH441
Serious eye damage/eye irritation, Category 2	H319
Skin sensitisation, Category 1	H317
Reproductive toxicity, Category 2	H361d
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

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

Adverse physicochemical, human health and environmental effects

Suspected of damaging the unborn child. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life with long lasting effects. Strongly accumulates in the environment and living organisms including in humans. May cause endocrine disruption in the environment.

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Contains : Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol; Zinc borate hydrate

Hazard statements (CLP) : EUH430 - May cause endocrine disruption in the environment.
EUH441 - Strongly accumulates in the environment and living organisms including in humans.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H361d - Suspected of damaging the unborn child.
H411 - 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.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P391 - Collect spillage.

2.3. Other hazards

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

Component	
Substance(s) meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	xylene (1330-20-7), 2-ethylhexane-1,3-diol (94-96-2), Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol, cyclohexanone (108-94-1), 2-methoxy-1-methylethyl acetate (108-65-6), Zinc borate hydrate (138265-88-0)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	xylene (1330-20-7), 2-ethylhexane-1,3-diol (94-96-2), cyclohexanone (108-94-1), 2-methoxy-1-methylethyl acetate (108-65-6), Zinc borate hydrate (138265-88-0)

The mixture contains substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are 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

Component	
Substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is 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	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

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	Zinc borate hydrate (138265-88-0), 2-ethylhexane-1,3-diol (94-96-2), cyclohexanone (108-94-1), xylene (1330-20-7), 2-methoxy-1-methylethyl acetate (108-65-6)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Zinc borate hydrate	CAS-No.: 138265-88-0 EC-No.: 235-804-2 REACH-no: 01-2119691658-19-xxxx	≥ 5 – < 10	Repr. 2, H361d Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol substance listed on REACH Candidate List vPvB substance; substance identified as having endocrine disrupting properties	EC-No.: 700-960-7 REACH-no: 01-2119555274-38-xxxx	≥ 2.5 – < 5	ED ENV 1, EUH430 vPvB, EUH441 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Chronic 3, H412
2-ethylhexane-1,3-diol	CAS-No.: 94-96-2 EC-No.: 202-377-9 EC Index-No.: 603-087-00-9 REACH-no: 01-2120000832-71-xxxx	≥ 1 – < 2.5	Eye Dam. 1, H318
cyclohexanone substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit	CAS-No.: 108-94-1 EC-No.: 203-631-1 EC Index-No.: 606-010-00-7 REACH-no: 01-2119453616-35-xxxx	≥ 0.1 – < 0.25	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight) Acute Tox. 4 (Inhalation:vapour), H332 (ATE=11 mg/l/4h) Eye Dam. 1, H318
xylene substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit (Note C)	CAS-No.: 1330-20-7 EC-No.: 215-535-7 EC Index-No.: 601-022-00-9 REACH-no: 01-2119488216-32-xxxx	≥ 0.1 – < 0.25	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight) Acute Tox. 4 (Inhalation:vapour), H332 (ATE=11 mg/l/4h) Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304
2-methoxy-1-methylethyl acetate substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit	CAS-No.: 108-65-6 EC-No.: 203-603-9 EC Index-No.: 607-195-00-7 REACH-no: 01-2119475791-29-xxxx	≥ 0.1 – < 0.25	Flam. Liq. 3, H226 STOT SE 3, H336

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.
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.
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. Metal oxides. Boronoxides.

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

General measures : Do not handle until all safety precautions have been read and understood.

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing 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 release to the environment. 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. Avoid contact with skin and eyes. Avoid breathing mist, vapours, spray.
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.
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

xylene (1330-20-7)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Xylene, mixed isomers, pure
IOEL TWA	221 mg/m³
	50 ppm
IOEL STEL	442 mg/m³
	100 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Ireland - Occupational Exposure Limits	
Local name	Xylene, mixed isomers

OEL TWA	221 mg/m³
	50 ppm
OEL STEL	442 mg/m³
	100 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
Regulatory reference	Chemical Agents Code of Practice 2024
Ireland - Biological limit values	
Local name	Xylene
BMGV	1.5 g/g creatinine Parameter: methylhippuric acids - Medium: urine - Sampling time: End of Shift
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)

cyclohexanone (108-94-1)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Cyclohexanone
IOEL TWA	40.8 mg/m³
	10 ppm
IOEL STEL	81.6 mg/m³
	20 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Ireland - Occupational Exposure Limits	
Local name	Cyclohexanone
OEL TWA	40.8 mg/m³
	10 ppm
OEL STEL	81.6 mg/m³
	20 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
Regulatory reference	Chemical Agents Code of Practice 2024
Ireland - Biological limit values	
Local name	Cyclohexanone
BMGV	8 mg/l Parameter: cyclohexanol - Medium: urine - Sampling time: End of shift - Notations: Cyclohexanol= metabolite; Ns (Non-specific) 80 mg/l Parameter: 1,2-Cyclohexanediol - Medium: urine - Sampling time: End of shift - Notations: Ns (Non-specific)
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)

2-methoxy-1-methylethyl acetate (108-65-6)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	2-Methoxy-1-methylethylacetate
IOEL TWA	275 mg/m³
	50 ppm
IOEL STEL	550 mg/m³
	100 ppm
Remark	Skin
Regulatory reference	COMMISSION DIRECTIVE 2000/39/EC
Ireland - Occupational Exposure Limits	
Local name	2-Methoxy-1-methylethylacetate
OEL TWA	275 mg/m³
	50 ppm
OEL STEL	550 mg/m³
	100 ppm
Remark	IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible)
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

Aluminum hydroxide (21645-51-2)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, inhalation	10.76 mg/m³
Long-term - local effects, inhalation	10.76 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	4.74 mg/kg bodyweight/day

xylene (1330-20-7)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	442 mg/m³
Acute - local effects, inhalation	442 mg/m³
Long-term - systemic effects, dermal	212 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	221 mg/m³
Long-term - local effects, inhalation	221 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, inhalation	260 mg/m³

Acute - local effects, inhalation	260 mg/m³
Long-term - systemic effects,oral	5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	65.3 mg/m³
Long-term - systemic effects, dermal	125 mg/kg bodyweight/day
Long-term - local effects, inhalation	65.3 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.044 mg/l
PNEC aqua (marine water)	0.004 mg/l
PNEC aqua (intermittent, freshwater)	0.01 mg/l
PNEC aqua (intermittent, marine water)	0.001 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	2.52 mg/kg dwt
PNEC sediment (marine water)	0.252 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.852 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1.6 mg/l

2-ethylhexane-1,3-diol (94-96-2)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	228.9 mg/kg bodyweight/day
Long-term - systemic effects, dermal	76.3 mg/kg bodyweight/day
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	114.5 mg/kg bodyweight/day
Acute - systemic effects, oral	0.51 mg/kg bodyweight
Long-term - systemic effects,oral	0.17 mg/kg bodyweight/day
Long-term - systemic effects, dermal	38.2 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.1 mg/l
PNEC aqua (marine water)	0.01 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	1.6 mg/kg dwt
PNEC sediment (marine water)	0.16 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.17 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	3 mg/l

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.2 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	14 µg/L
PNEC aqua (marine water)	1.4 µg/L
PNEC aqua (intermittent, freshwater)	140 µg/L
PNEC (Sediment)	
PNEC sediment (freshwater)	1.064 mg/kg dwt
PNEC sediment (marine water)	106.4 mg/kg dwt
PNEC (Soil)	
PNEC soil	212.2 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	8.89 mg/kg food
PNEC (STP)	
PNEC sewage treatment plant	2.4 mg/l

cyclohexanone (108-94-1)	
DNEL/DMEL (Workers)	
Acute - systemic effects, inhalation	10 mg/m³
Acute - local effects, dermal	4 mg/kg bodyweight/day
Acute - local effects, inhalation	20 mg/m³
Long-term - systemic effects, dermal	4 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	10 mg/m³
Long-term - local effects, inhalation	40 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, oral	1.5 mg/kg bodyweight/day
Acute - local effects, dermal	1 mg/kg bodyweight/day
Acute - local effects, inhalation	5 mg/m³
Long-term - systemic effects,oral	1.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2.55 mg/m³
Long-term - systemic effects, dermal	1 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.356 mg/l
PNEC aqua (marine water)	0.036 mg/l
PNEC aqua (intermittent, freshwater)	3.29 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	2.69 mg/kg dwt
PNEC sediment (marine water)	0.269 mg/kg dwt

PNEC (Soil)	
PNEC soil	0.328 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

2-methoxy-1-methylethyl acetate (108-65-6)	
DNEL/DMEL (Workers)	
Acute - local effects, inhalation	550 mg/m³
Long-term - systemic effects, dermal	796 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	275 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, oral	500 mg/kg bodyweight/day
Long-term - systemic effects,oral	36 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	33 mg/m³
Long-term - systemic effects, dermal	320 mg/kg bodyweight/day
Long-term - local effects, inhalation	33 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.635 mg/l
PNEC aqua (marine water)	0.064 mg/l
PNEC aqua (intermittent, freshwater)	6.35 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	3.29 mg/kg dwt
PNEC sediment (marine water)	0.329 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.29 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	100 mg/l

Zinc borate hydrate (138265-88-0)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	35.49 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	2.48 mg/m³
Long-term - local effects, inhalation	0.69 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.507 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0.88 mg/m³
Long-term - systemic effects, dermal	25.35 mg/kg bodyweight/day
Long-term - local effects, inhalation	0.12 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	0.0206 mg/l
PNEC aqua (marine water)	0.0061 mg/l

PNEC (Sediment)	
PNEC sediment (freshwater)	117.8 mg/kg dwt
PNEC sediment (marine water)	56.5 mg/kg dwt
PNEC (Soil)	
PNEC soil	35.6 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	0.1 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. 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. A-P2. . 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.

Consumer exposure controls:
Under the intended and foreseeable conditions of use, the product does not generate respirable dust, and therefore exposure to substances in dust form is not expected during handling or application. Occupational exposure limits relating to dust are only relevant if dust is generated (e.g, during the mechanical processing of the cured product).

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	:	Black.
Appearance	:	Pasty.
Odour	:	characteristic.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Not combustible
Explosive properties	:	Product is not explosive.
Oxidising properties	:	Non oxidizing.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	> 200 °C
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	22666.667 mm²/s
Viscosity, dynamic	:	≈ 34000 mPa·s (20 °C)
Solubility	:	Water: Not miscible
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	≈ 1.5 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 : ≈ 2 %

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)

FLAMMADUR® A 391	
ATE CLP (vapours)	> 20 mg/l

2-ethylhexane-1,3-diol (94-96-2)	
LC50 Inhalation - Rat	3800 mg/m³

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met)
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 : Suspected of damaging the unborn child.
STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

FLAMMADUR® A 391	
Viscosity, kinematic	22666.667 mm²/s

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Component	
Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	The substance is identified for having endocrine disrupting properties but there is no additional data available (see section 2.3)

11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.
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) : Toxic to aquatic life with long lasting effects.

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	
LC50 - Fish [1]	25.8 mg/l (OECD TG 203)
EC50 - Crustacea [1]	14 mg/l (OECD TG 202)
EC50 72h algae	15 mg/l (OECD TG 201)
NOEC chronic fish	> 1000 mg/l (QSAR)
NOEC chronic crustacea	> 1000 mg/l (QSAR)
NOEC chronic algae	6 mg/l (OECD TG 201)

Zinc borate hydrate (138265-88-0)	
LC50 - Fish [1]	0.168 mg/l
EC50 - Crustacea [1]	0.413 mg/l
NOEC chronic fish	0.044 mg/l
NOEC chronic crustacea	50 µg/L

12.2. Persistence and degradability

FLAMMADUR® A 391	
Persistence and degradability	The product has not been tested.

xylene (1330-20-7)	
Biodegradation	87.8 % (28 d; (OECD 301F method))

2-ethylhexane-1,3-diol (94-96-2)	
Persistence and degradability	Readily biodegradable.

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	
Persistence and degradability	Not biodegradable.
Biodegradation	4 % (28 d)

cyclohexanone (108-94-1)	
Persistence and degradability	Readily biodegradable.
Biodegradation	90 – 100 % (28 d; (OECD 301F method))

2-methoxy-1-methylethyl acetate (108-65-6)	
Persistence and degradability	Readily biodegradable.
Biodegradation	90 % (28 d; (OECD 301F method))

Zinc borate hydrate (138265-88-0)	
Persistence and degradability	Not applicable for inorganic substances.

12.3. Bioaccumulative potential

FLAMMADUR® A 391	
Bioaccumulative potential	The product has not been tested.

xylene (1330-20-7)	
Bioconcentration factor (BCF REACH)	< 25.9
Partition coefficient n-octanol/water (Log Pow)	3.2 (20 °C)
Bioaccumulative potential	Bioaccumulation is not expected to occur.

cyclohexanone (108-94-1)	
Partition coefficient n-octanol/water (Log Pow)	0.86 (25 °C; (OECD 107 method))
Bioaccumulative potential	Bioaccumulation unlikely.

2-methoxy-1-methylethyl acetate (108-65-6)	
Partition coefficient n-octanol/water (Log Pow)	1.2 (20 °C; pH 6.8; (OECD 117 method))
Bioaccumulative potential	Bioaccumulation unlikely.

12.4. Mobility in soil

FLAMMADUR® A 391	
Mobility in soil	The product has not been tested

xylene (1330-20-7)	
Surface tension	28.747 mN/m (25°C; average (Isomer mixture))
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	≈ 2.73 (o-xylene; Estimation of the adsorption coefficient (Koc) on soil and on sewage sludge using high performance liquid chromatography (HPLC); (OECD 121 method))
Ecology - soil	Very volatile.

2-ethylhexane-1,3-diol (94-96-2)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.1101

Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	5.88
Ecology - soil	Adsorbs into the soil.

cyclohexanone (108-94-1)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.596 (25 °C; Quantitative structure-activity relationship (QSAR))

2-methoxy-1-methylethyl acetate (108-65-6)	
Surface tension	29.4 mN/m (20 °C)

12.5. Results of PBT and vPvB assessment

Component	
Substance(s) meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	xylene (1330-20-7), 2-ethylhexane-1,3-diol (94-96-2), Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol, cyclohexanone (108-94-1), 2-methoxy-1-methylethyl acetate (108-65-6), Zinc borate hydrate (138265-88-0)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	xylene (1330-20-7), 2-ethylhexane-1,3-diol (94-96-2), cyclohexanone (108-94-1), 2-methoxy-1-methylethyl acetate (108-65-6), Zinc borate hydrate (138265-88-0)

12.6. Endocrine disrupting properties

Component	
Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol	The substance is identified for having endocrine disrupting properties but there is no additional data available (see section 2.3)

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 01 11* - waste paint and varnish containing organic solvents or other dangerous substances
HP Code	:	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. 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. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol)	Environmentally hazardous substance, liquid, n.o.s. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol)
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Zinc borate hydrate ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol), 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)	xylene ; cyclohexanone ; 2-methoxy-1-methylethyl acetate
3(b)	FLAMMADUR® A 391 ; xylene ; 2-ethylhexane-1,3-diol ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol ; cyclohexanone ; 2-methoxy-1-methylethyl acetate
3(c)	FLAMMADUR® A 391 ; Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol

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 ≥ 0.1 % or SCL: Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol (EC 700-960-7)

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 : ≈ 2 %
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 : 10.91 g/l VOC

Seveso Directive (Disaster Risk Reduction)

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	**Upper-tier**
E2 Hazardous to the Aquatic Environment in Category Chronic 2	200	500

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 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
ED ENV 1	Endocrine disruptor for the environment, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
vPvB	Very persistent and very bioaccumulative
EUH430	May cause endocrine disruption in the environment.
EUH441	Strongly accumulates in the environment and living organisms including in humans.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

H361d	Suspected of damaging the unborn child.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
ED ENV 1	EUH430	Calculation method
vPvB	EUH441	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 2	H361d	Calculation method
Aquatic Chronic 2	H411	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.