

XRD/M

Safety Data Sheet

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

Reference number: EHC: 28611000002333

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

1.1. Product identifier

Product form : Mixture
Product name : XRD/M
UFI : Y9F6-P0XD-A004-N2NR
Product code : XRD/M
Type of product : Adhesives
Product group : Blend

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

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only
Use of the substance/mixture : Adhesives, binding agents
Function or use category : Adhesives, binding agents

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

XRD Nano Limited
Cambridge Vision Park
Chivers Way
CB24 9AD Cambridge - United Kingdom
T +44(0) 1793 823741
www.xrdsnano.com

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Skin corrosion/irritation, Category 2 H315
Serious eye damage/eye irritation, Category 1 H318
Skin sensitisation, Category 1 H317
Reproductive toxicity, Category 1B H360
Specific target organ toxicity — Single exposure, Category 3, H335
Respiratory tract irritation
Specific target organ toxicity — Repeated exposure, Category 2 H373
Hazardous to the aquatic environment — Chronic Hazard, Category 2 H411
Full text of H- and EUH-statements: see section 16

May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May cause respiratory irritation. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

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2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

Hazardous ingredients

Hazard statements (CLP)

Precautionary statements (CLP)

- : Danger
- : ACRYLATED PENTAERYTHRITOL, PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S), 2-phenoxyethyl acrylate, Tripropylene glycol diacrylate, Benzophenone, diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide
- : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H360 - May damage fertility or the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.
H411 - Toxic to aquatic life with long lasting effects.
- : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P310 - Immediately call a POISON CENTER or doctor.
P312 - Call a POISON CENTRE or doctor if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Labelling according to: exemption for packages of a capacity of 125ml or less

Hazard pictograms (CLP)



Signal word (CLP)

Hazardous ingredients

Hazard statements (CLP)

- : Danger
- : ACRYLATED PENTAERYTHRITOL, PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S), 2-phenoxyethyl acrylate, Tripropylene glycol diacrylate, Benzophenone, diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide
- : H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H360 - May damage fertility or the unborn child.

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Precautionary statements (CLP)

: P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P310 - Immediately call a POISON CENTER or doctor.
P321 - Specific treatment (see supplemental first aid instruction on this label).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acrylated resin		≥ 25 – < 50	Skin Irrit. 2, H315 Eye Irrit. 2, H319
2-phenoxyethyl acrylate	(CAS-No.) 48145-04-6 (EC-No.) 256-360-6	≥ 10 – < 15	Skin Sens. 1A, H317 Repr. 2, H361d Aquatic Chronic 2, H411
Tripropylene glycol diacrylate	(CAS-No.) 42978-66-5 (EC-No.) 256-032-2 (EC Index-No.) 607-249-00-X	≥ 10 – < 15	Skin Sens. 1, H317 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 2, H411
Benzophenone	(CAS-No.) 119-61-9 (EC-No.) 204-337-6	≥ 5 – < 15	STOT RE 2, H373 Aquatic Chronic 3, H412 (M=0)
ACRYLATED PENTAERYTHRITOL	(CAS-No.) 1245638-61-2 (EC-No.) 629-850-6	≥ 5 – < 15	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 2, H411
diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide	(CAS-No.) 75980-60-8 (EC-No.) 278-355-8 (EC Index-No.) 015-203-00-X	≥ 0.1 – < 5	Skin Sens. 1B, H317 Repr. 1B, H360 Aquatic Chronic 2, H411
Acrylated resin		≥ 0.1 – < 5	Eye Irrit. 2, H319
PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S)	(CAS-No.) 84170-74-1 (EC-No.) 617-546-6	≥ 0.1 – < 5	Skin Sens. 1B, H317 Aquatic Chronic 2, H411

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acrylic acid substance with national workplace exposure limit(s) (GB); substance with a Community workplace exposure limit	(CAS-No.) 79-10-7 (EC-No.) 201-177-9 (EC Index-No.) 607-061-00-8	< 5	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 (M=10)
Butylated hydroxytoluene substance with national workplace exposure limit(s) (GB)	(CAS-No.) 128-37-0 (EC-No.) 204-881-4	< 0.1	Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Specific concentration limits:		
Name	Product identifier	Specific concentration limits
Tripropylene glycol diacrylate	(CAS-No.) 42978-66-5 (EC-No.) 256-032-2 (EC Index-No.) 607-249-00-X	(10 ≤C < 100) STOT SE 3, H335
acrylic acid	(CAS-No.) 79-10-7 (EC-No.) 201-177-9 (EC Index-No.) 607-061-00-8	(1 ≤C < 100) STOT SE 3, H335

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. Call a physician immediately.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation	: May cause respiratory irritation.
Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

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.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/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

Avoid release to the environment. Notify authorities if product enters sewers or 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. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.
Hygiene measures : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

acrylic acid (79-10-7)

United Kingdom - Occupational Exposure Limits

WEL TWA (OEL TWA) [1]	29 mg/m ³
WEL TWA (OEL TWA) [2]	10 ppm
WEL STEL (OEL STEL)	59 mg/m ³ (STEL in relation to a 1-minute reference period)
WEL STEL (OEL STEL) [ppm]	20 ppm

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Butylated hydroxytoluene (128-37-0)

United Kingdom - Occupational Exposure Limits

WEL TWA (OEL TWA) [1]	10 mg/m ³
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8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station, ventilate curing ovens to prevent emissions in the workplace.

Hand protection:

Protective gloves

Eye protection:

Safety glasses with side shields

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Colourless.
Odor	: Acrylate.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Viscosity	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

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Explosive limits : No data available

9.2. Other information

No additional information available

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

None under recommended storage and handling conditions (see section 7).

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 toxicological effects

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)

acrylic acid (79-10-7)	
LD50 oral rat	1500 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Experimental value, Oral, 7 day(s))
LD50 dermal rabbit	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 5.1 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (vapours), 14 day(s))

Butylated hydroxytoluene (128-37-0)	
LD50 oral rat	> 6000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal, 14 day(s))

PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S) (84170-74-1)	
LD50 oral rat	> 5000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))

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LC50 Inhalation - Rat	> 2 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
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2-phenoxyethyl acrylate (48145-04-6)	
LD50 oral rat	> 5000 mg/kg (OECD 401: Acute Oral Toxicity, Rat, Female, Experimental value, Oral, 14 day(s))

Tripropylene glycol diacrylate (42978-66-5)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, 14 day(s), Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	> 2000 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))

Benzophenone (119-61-9)	
LD50 oral	2895 mg/kg bodyweight (Equivalent or similar to OECD 401, Mouse, Experimental value, Oral, 7 day(s))
LD50 dermal rabbit	3535 mg/kg bodyweight (Rabbit, Experimental value, Dermal)

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide (75980-60-8)	
LD50 oral rat	> 5000 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye damage.
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)

acrylic acid (79-10-7)	
IARC group	3 - Not classifiable

Butylated hydroxytoluene (128-37-0)	
IARC group	3 - Not classifiable

Benzophenone (119-61-9)	
IARC group	2B - Possibly carcinogenic to humans

Butylated hydroxytoluene (128-37-0)	
NOAEL (chronic, oral, animal/male, 2 years)	25 mg/kg bodyweight Animal: rat, Animal sex: male, Remarks on results: other:Effect type: toxicity (migrated information)

Reproductive toxicity	: May damage fertility or the unborn child.
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2-phenoxyethyl acrylate (48145-04-6)	
NOAEL (animal/female, F0/P)	300 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure	: May cause respiratory irritation.
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STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

ACRYLATED PENTAERYTHRITOL (1245638-61-2)	
NOAEL (oral, rat, 90 days)	25 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (dermal, rat/rabbit, 90 days)	0.75 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

acrylic acid (79-10-7)	
LOAEL (oral, rat, 90 days)	100 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 452 (Chronic Toxicity Studies)

Butylated hydroxytoluene (128-37-0)	
LOAEL (oral, rat, 90 days)	100 mg/kg bodyweight Animal: rat, Animal sex: male
NOAEL (oral, rat, 90 days)	25 mg/kg bodyweight Animal: rat, Animal sex: male

PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S) (84170-74-1)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents), Guideline: EU Method B.7 (Repeated Dose (28 Days) Toxicity (Oral))

2-phenoxyethyl acrylate (48145-04-6)	
NOAEL (oral, rat, 90 days)	300 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.
Ecology - water : 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.
Not rapidly degradable

ACRYLATED PENTAERYTHRITOL (1245638-61-2)	
LC50 - Fish [1]	3.2 mg/l Test organisms (species): Cyprinus carpio
EC50 - Crustacea [1]	13 mg/l Test organisms (species): Daphnia magna
EC50 96h - Algae [1]	12 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

acrylic acid (79-10-7)	
LC50 - Fish [1]	27 mg/l (EPA OTS 797.1400, 96 h, Oncorhynchus mykiss, Flow-through system, Fresh water, Experimental value)
EC50 - Crustacea [1]	95 mg/l (EPA OTS 797.1930, 48 h, Daphnia magna, Flow-through system, Fresh water, Experimental value)

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EC50 72h - Algae [1]	0.04 mg/l (EU Method C.3, <i>Desmodesmus subspicatus</i> , Static system, Fresh water, Experimental value)
EC50 72h - Algae [2]	0.14 mg/l (EPA OTS 797.1050, <i>Pseudokirchneriella subcapitata</i> , Static system, Fresh water, Experimental value)
LOEC (chronic)	8.1 mg/l Test organisms (species): <i>Daphnia magna</i> Duration: '21 d'

Butylated hydroxytoluene (128-37-0)	
LC50 - Fish [1]	0.199 mg/l (ECOSAR v1.00, 96 h, Pisces, QSAR, Lethal)
EC50 - Crustacea [1]	0.48 mg/l (OECD 202: <i>Daphnia</i> sp. Acute Immobilisation Test, 48 h, <i>Daphnia magna</i> , Static system, Fresh water, Experimental value, GLP)
EC50 72h - Algae [1]	> 0.24 mg/l (OECD 201: Alga, Growth Inhibition Test, <i>Pseudokirchneriella subcapitata</i> , Static system, Fresh water, Experimental value, Growth rate)
LOEC (chronic)	1 mg/l Test organisms (species): <i>Daphnia magna</i> Duration: '21 d'
NOEC (chronic)	0.023 mg/l Test organisms (species): <i>Daphnia magna</i> Duration: '21 d'
NOEC chronic fish	0.053 mg/l Test organisms (species): <i>Oryzias latipes</i> Duration: '42 d'

PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S) (84170-74-1)	
LC50 - Fish [1]	2.7 mg/l Test organisms (species): <i>Danio rerio</i> (previous name: <i>Brachydanio rerio</i>)
EC50 - Crustacea [1]	37 mg/l Test organisms (species): <i>Daphnia magna</i>
EC50 72h - Algae [1]	11 mg/l Test organisms (species): <i>Pseudokirchneriella subcapitata</i> (previous names: <i>Raphidocelis subcapitata</i> , <i>Selenastrum capricornutum</i>)
EC50 72h - Algae [2]	3.4 mg/l Test organisms (species): <i>Pseudokirchneriella subcapitata</i> (previous names: <i>Raphidocelis subcapitata</i> , <i>Selenastrum capricornutum</i>)

2-phenoxyethyl acrylate (48145-04-6)	
LC50 - Fish [1]	10 mg/l (Equivalent or similar to OECD 203, 96 h, <i>Leuciscus idus</i> , Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	1.21 mg/l (Equivalent or similar to OECD 202, 48 h, <i>Daphnia magna</i> , Static system, Fresh water, Experimental value, Locomotor effect)
EC50 72h - Algae [1]	4.4 mg/l (DIN 38412-9, <i>Desmodesmus subspicatus</i> , Static system, Fresh water, Experimental value, Growth rate)
EC50 72h - Algae [2]	1.7 mg/l Test organisms (species): <i>Desmodesmus subspicatus</i> (previous name: <i>Scenedesmus subspicatus</i>)
EC50 96h - Algae [1]	4.1 mg/l Test organisms (species): <i>Desmodesmus subspicatus</i> (previous name: <i>Scenedesmus subspicatus</i>)
EC50 96h - Algae [2]	1.33 mg/l Test organisms (species): <i>Desmodesmus subspicatus</i> (previous name: <i>Scenedesmus subspicatus</i>)

Tripropylene glycol diacrylate (42978-66-5)	
LC50 - Fish [1]	4.5 – 10 mg/l (DIN 38412-15, 96 h, <i>Leuciscus idus</i> , Static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	89 mg/l (EU Method C.1, 48 h, <i>Daphnia magna</i> , Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	65.9 mg/l (DIN 38412-9, 72 h, <i>Desmodesmus subspicatus</i> , Static system, Fresh water, Experimental value, Nominal concentration)

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Benzophenone (119-61-9)	
LC50 - Fish [1]	15.3 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)
LC50 - Fish [2]	14.2 mg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]	6.784 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, Locomotor effect)
EC50 72h - Algae [1]	3.5 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	3.5 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)
NOEC (chronic)	0.2 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide (75980-60-8)	
LC50 - Fish [1]	1 – 10 mg/l (OECD 203: Fish, Acute Toxicity Test, 48 h, Oryzias latipes, Experimental value)
EC50 - Crustacea [1]	10 – 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Experimental value)
EC50 72h - Algae [1]	10 – 100 mg/l (OECD 201: Alga, Growth Inhibition Test, Algae, Experimental value)

12.2. Persistence and degradability

acrylic acid (79-10-7)	
Persistence and degradability	Readily biodegradable in the soil. Readily biodegradable in water.

Butylated hydroxytoluene (128-37-0)	
Persistence and degradability	Biodegradable in the soil. Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.51 g O ₂ /g substance
Chemical oxygen demand (COD)	2.27 g O ₂ /g substance
ThOD	2.977 g O ₂ /g substance

2-phenoxyethyl acrylate (48145-04-6)	
Persistence and degradability	Not readily biodegradable in water.

Tripropylene glycol diacrylate (42978-66-5)	
Persistence and degradability	Not readily biodegradable in water.

Benzophenone (119-61-9)	
Persistence and degradability	Readily biodegradable in water.

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide (75980-60-8)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

acrylic acid (79-10-7)	
Partition coefficient n-octanol/water (Log Pow)	0.46 (25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

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Butylated hydroxytoluene (128-37-0)	
BCF - Fish [1]	230 – 2500 (OECD 305: Bioconcentration: Flow-Through Fish Test, 56 day(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	4.17 (Experimental value, 37 °C)
Bioaccumulative potential	Potential for bioaccumulation ($4 \geq \text{Log Kow} \leq 5$).

2-phenoxyethyl acrylate (48145-04-6)	
Partition coefficient n-octanol/water (Log Pow)	2.58 (room temperature, Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Low potential for bioaccumulation ($\text{Log Kow} < 4$).

Tripropylene glycol diacrylate (42978-66-5)	
Partition coefficient n-octanol/water (Log Pow)	2 (Experimental value, EU Method A.8: Partition Coefficient, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation ($\text{Log Kow} < 4$).

Benzophenone (119-61-9)	
BCF - Fish [1]	3.4 – 12 (8 week(s), Oryzias latipes, Literature)
Partition coefficient n-octanol/water (Log Pow)	3.18 (Weight of evidence approach, 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation ($\text{BCF} < 500$).

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide (75980-60-8)	
BCF - Fish [1]	< 40 (OECD 305: Bioconcentration: Flow-Through Fish Test, Cyprinidae sp., Experimental value, Chronic)
Bioaccumulative potential	Low potential for bioaccumulation ($\text{BCF} < 500$).

12.4. Mobility in soil

acrylic acid (79-10-7)	
Surface tension	0.0281 N/m (20 °C, 1000 mg/l)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.78 – 2.14 (log Koc, Experimental value)
Ecology - soil	Low potential for adsorption in soil.

Butylated hydroxytoluene (128-37-0)	
Surface tension	No data available (test not performed)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.362 (log Koc, SRC PCKOCWIN v1.66, Calculated value)
Ecology - soil	Low potential for mobility in soil. May be harmful to plant growth, blooming and fruit formation.

2-phenoxyethyl acrylate (48145-04-6)	
Surface tension	53.6 mN/m (23 °C, Experimental value, 472.5 mg/l, OECD 115: Surface Tension of Aqueous Solutions)
Ecology - soil	No (test)data on mobility of the substance available.

Tripropylene glycol diacrylate (42978-66-5)	
Surface tension	No data available in the literature

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Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1 (log Koc, SRC PCKOCWIN v1.66, Calculated value)
Ecology - soil	Highly mobile in soil.

Benzophenone (119-61-9)	
Surface tension	45.1 mN/m (20 °C)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	2.71 (log Koc, Calculated value)
Ecology - soil	Low potential for adsorption in soil.

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide (75980-60-8)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Results of PBT and vPvB assessment

Component	
2-phenoxyethyl acrylate (48145-04-6)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Tripropylene glycol diacrylate (42978-66-5)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Benzophenone (119-61-9)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
acrylic acid (79-10-7)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
Butylated hydroxytoluene (128-37-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

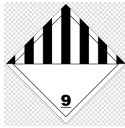

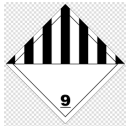

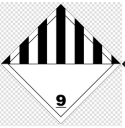
In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate)	Environmentally hazardous substance, liquid, n.o.s. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate)

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Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ACRYLATED PENTAERYTHRITOL ; Tripropylene glycol diacrylate), 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	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
Limited quantities (ADR)	: 5I
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Special packing provisions (ADR)	: PP1
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T4
Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 90
Orange plates	: 
Tunnel restriction code (ADR)	: -
EAC code	: •3Z

Transport by sea

Special provisions (IMDG)	: 274, 335, 969
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
Special packing provisions (IMDG)	: PP1
IBC packing instructions (IMDG)	: IBC03

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Tank instructions (IMDG) : T4
Tank special provisions (IMDG) : TP1, TP29
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-F
Stowage category (IMDG) : A

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 packing instructions (IATA) : 964
CAO max net quantity (IATA) : 450L
Special provisions (IATA) : A97, A158, A197, A215
ERG code (IATA) : 9L

Inland waterway transport

Classification code (ADN) : M6
Special provisions (ADN) : 274, 335, 375, 601
Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Carriage permitted (ADN) : T
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : M6
Special provisions (RID) : 274, 335, 375, 601
Limited quantities (RID) : 5L
Excepted quantities (RID) : E1
Packing instructions (RID) : P001, IBC03, LP01, R001
Special packing provisions (RID) : PP1
Mixed packing provisions (RID) : MP19
Portable tank and bulk container instructions (RID) : T4
Portable tank and bulk container special provisions (RID) : TP1, TP29
Tank codes for RID tanks (RID) : LGBV
Transport category (RID) : 3
Special provisions for carriage – Packages (RID) : W12
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW31
Colis express (express parcels) (RID) : CE8
Hazard identification number (RID) : 90

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

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

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

Reference code	Applicable on
3(a)	acrylic acid
3(b)	XRD/M ; ACRYLATED PENTAERYTHRITOL ; acrylic acid ; Acrylated resin ; PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S) ; Acrylated resin ; 2-phenoxyethyl acrylate ; Tripropylene glycol diacrylate
3(c)	XRD/M ; ACRYLATED PENTAERYTHRITOL ; acrylic acid ; PROPOXYLATED NEOPENTYL GLYCOL DIACRYLATE(S) ; 2-phenoxyethyl acrylate ; Tripropylene glycol diacrylate
40.	acrylic acid

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Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

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
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
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
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)

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TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), 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 1	Hazardous to the aquatic environment — Chronic 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
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
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
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.
H360	May damage fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Repr. 1B	Reproductive toxicity, Category 1B
Repr. 2	Reproductive toxicity, Category 2
Skin Corr. 1A	Skin corrosion/irritation, Category 1, Sub-Category 1A
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A

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Skin Sens. 1B	Skin sensitisation, category 1B
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

SDS EU (REACH Annex II) - EU date format

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.