Duo-Link Universal Base

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Revision date: 1/13/2025 Supersedes version of: 1/10/2023 Version: 5.0

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

1.1. Product identifier

Product form : Mixture
Product name : Duo-Link Universal Base

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

Relevant identified uses

Use of the substance/mixture : For Rx Only

1.3. Details of the supplier of the safety data sheet

Manufacturer
BISCO, Inc.
1100 W. Irving Park Rd.
60193 Schaumburg, IL
U.S.A
T 1-800-247-3368 or 1-847-534-6000
sales@bisco.com - www.bisco.com

EC REP
BISICO France
208, allée de la Coudoulette
13680 Lançon de Provence
France
T 33-4-90-42-92-92

1.4. Emergency telephone number

Emergency number : CHEMTREC - 24-Hour Hazmat Emergency Communications Center
Domestic: 1-800-424-9300 Outside the U.S.: 1-703-527-3887, collect calls accepted

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
Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation	H335

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

Adverse physicochemical, human health and environmental effects

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07

Signal word (CLP) : Warning
Contains : Urethane Dimethacrylate; Triethylene Glycol Dimethacrylate; Ytterbium Oxide-Silica; Tetrahydrofurfuryl Methacrylate; BisGMA
Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
Precautionary statements (CLP) : P261 - Avoid breathing dust, fume, vapours.
P264 - Wash hands thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, eye protection.

P302+P352 - IF ON SKIN: Wash with plenty of soap and 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.
P312 - Call a POISON CENTER, 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.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation, a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

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	Triethylene Glycol Dimethacrylate (109-16-0), Silicon Dioxide (7631-86-9), Aluminum Oxide (1344-28-1), Tetrahydrofurfuryl Methacrylate (2455-24-5), Trimethylolpropane Trimethacrylate (3290-92-4)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Triethylene Glycol Dimethacrylate (109-16-0), Silicon Dioxide (7631-86-9), Aluminum Oxide (1344-28-1), Tetrahydrofurfuryl Methacrylate (2455-24-5), Trimethylolpropane Trimethacrylate (3290-92-4)

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	Ytterbium Oxide-Silica (NA)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ytterbium Fluoride	CAS-No.: 13760-80-0 EC-No.: 237-354-2	10 - 30	Skin Irrit. 2, H315 Eye Irrit. 2, H319
Urethane Dimethacrylate	CAS-No.: 72869-86-4 EC-No.: 276-957-5	10 - 30	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT SE 3, H335
BisGMA	CAS-No.: 1565-94-2 EC-No.: 216-367-7	10 - 30	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT SE 3, H335
Triethylene Glycol Dimethacrylate	CAS-No.: 109-16-0 EC-No.: 203-652-6	5 - 10	Skin Sens. 1B, H317

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Ytterbium Oxide-Silica	CAS-No.: NA	5 - 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Silicon Dioxide	CAS-No.: 112945-52-5	1 - 5	Not classified
Tetrahydrofurfuryl Methacrylate	CAS-No.: 2455-24-5 EC-No.: 219-529-5	1 - 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
Fumed Silica	CAS-No.: 68611-44-9 EC-No.: 271-893-4	1 - 5	Not classified
Trimethylolpropane Trimethacrylate	CAS-No.: 3290-92-4 EC-No.: 221-950-4	1 - 5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Acute 1, H400
Aluminum Oxide	CAS-No.: 1344-28-1 EC-No.: 215-691-6	1 - 5	Not classified
Silicon Dioxide	CAS-No.: 7631-86-9 EC-No.: 231-545-4	< 1	Not classified

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

Components - Nanoform

Silicon Dioxide (7631-86-9)	
Name of (set of) nanoform(s)	**Silicon Dioxide**
Number based particle size distribution	5 - 50 nm
Particle shape	Crystal
Specific surface area	175 - 225 m2/g
Ytterbium Oxide-Silica (NA)	
Name of (set of) nanoform(s)	**Ytterbium Oxide-Silica**
Number based particle size distribution	20 - 60
Particle shape	Crystal
Specific surface area	30 - 50 m2/g
Fumed Silica (68611-44-9)	
Name of (set of) nanoform(s)	**Fumed Silica**
Number based particle size distribution	16 nm
Particle shape	Crystal
Specific surface area	90 - 130 m2/g
Aluminum Oxide (1344-28-1)	
Name of (set of) nanoform(s)	**Aluminum Oxide**
Number based particle size distribution	10 - 13 nm
Particle shape	Crystal
Specific surface area	85 - 115 m2/g
Silicon Dioxide (112945-52-5)	
Name of (set of) nanoform(s)	**Silicon Dioxide**
Number based particle size distribution	40 nm

Particle shape	Crystal
Specific surface area	50 m2/g

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

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.

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

Symptoms/effects after skin contact : Irritation. 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 : Water spray. Dry powder. Foam.

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust, fume, vapours.

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.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product.

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 : Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid breathing dust, fume, vapours.

Hygiene measures : 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 in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Personal protection equipment

Personal protective equipment symbol(s):

Eye and face protection

Eye protection:
Safety glasses

Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Protective gloves

Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

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 : Solid

Colour : Light yellow / Milky white.

Appearance : Paste.

Odour	:	Acrylic.
Odour threshold	:	Not available
Melting point	:	Not available
Freezing point	:	Not applicable
Boiling point	:	Not available
Flammability	:	Non flammable.
Lower explosion limit	:	Not applicable
Upper explosion limit	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not available
pH	:	Not available
pH solution	:	Not available
Viscosity, kinematic	:	Not applicable
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	Not available
Vapour pressure at 50°C	:	Not available
Density	:	Not available
Relative density	:	Not applicable
Relative vapour density at 20°C	:	Not applicable
Particle size	:	Not available

See section 3 for more information about nano properties.

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 hazard classes as defined in Regulation (EC) No 1272/2008

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

Urethane Dimethacrylate (72869-86-4)	
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)), Remarks on results: no indication of skin irritation up to the relevant limit dose level

Triethylene Glycol Dimethacrylate (109-16-0)	
LD50 oral rat	10837 mg/kg Source: NLM,THOMSON
LD50 dermal	> 2000 mg/kg bodyweight (US EPA, 14 day(s), Mouse, Male, Experimental value, Skin, 14 day(s))

Silicon Dioxide (7631-86-9)	
LD50 oral rat	3160 mg/kg Source: TOMES; HAZARDTEXT
LD50 dermal rabbit	> 5000 mg/kg Source: ECHA
LC50 Inhalation - Rat	> 5.01 mg/l (OECD 436: Acute inhalation toxicity-acute toxic class method, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 15 day(s))
LC50 Inhalation - Rat (Dust/Mist)	5.01 mg/l Source: ECHA

Ytterbium Fluoride (13760-80-0)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method), Guideline: EU Method B.1 bis (Acute Oral Toxicity - Fixed Dose Procedure)

Fumed Silica (68611-44-9)	
LD50 oral rat	> 5000 mg/kg (Rat, Literature study, Oral)

Aluminum Oxide (1344-28-1)	
LD50 oral rat	> 10000 mg/kg Source: ECHA
LC50 Inhalation - Rat	> 2.3 mg/l air (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol), 14 day(s))
LC50 Inhalation - Rat (Dust/Mist)	> 2.3 mg/l Source: ECHA

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
LD50 oral rat	≈ 4000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)

Trimethylolpropane Trimethacrylate (3290-92-4)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity - Acute Toxic Class Method, Rat, 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))
LD50 dermal rabbit	17120 mg/kg (Rabbit)

Silicon Dioxide (112945-52-5)	
LD50 oral rat	> 5000 mg/kg (Rat, Literature study, Oral)
LD50 dermal rabbit	> 5000 mg/kg (Rabbit, Literature study, Dermal)

Skin corrosion/irritation : Causes skin irritation.

Triethylene Glycol Dimethacrylate (109-16-0)	
pH	6.8 - 7.2

Silicon Dioxide (7631-86-9)	
pH	3.5 - 4.4

Ytterbium Fluoride (13760-80-0)	
pH	4.53 Temp.: 20 °C

Fumed Silica (68611-44-9)	
pH	3.7 - 4.7 (4 %, 20 °C)

Aluminum Oxide (1344-28-1)	
pH	No data available in the literature

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
pH	No data available in the literature

Trimethylolpropane Trimethacrylate (3290-92-4)	
pH	5.7 (20.1 mg/l, 20 °C, OECD 105: Water Solubility)

Silicon Dioxide (112945-52-5)	
pH	3.6 - 4.5 (4 %)

Serious eye damage/irritation : Causes serious eye irritation.

Triethylene Glycol Dimethacrylate (109-16-0)	
pH	6.8 - 7.2

Silicon Dioxide (7631-86-9)	
pH	3.5 - 4.4

Ytterbium Fluoride (13760-80-0)	
pH	4.53 Temp.: 20 °C

Fumed Silica (68611-44-9)	
pH	3.7 - 4.7 (4 %, 20 °C)

Aluminum Oxide (1344-28-1)	
pH	No data available in the literature

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
pH	No data available in the literature

Trimethylolpropane Trimethacrylate (3290-92-4)	
pH	5.7 (20.1 mg/l, 20 °C, OECD 105: Water Solubility)

Silicon Dioxide (112945-52-5)	
pH	3.6 - 4.5 (4 %)

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

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Silicon Dioxide (7631-86-9)	
IARC group	3 - Not classifiable

Ytterbium Fluoride (13760-80-0)	
IARC group	4 - Probably not carcinogenic to humans

Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

Urethane Dimethacrylate (72869-86-4)	
STOT-single exposure	May cause respiratory irritation.

Ytterbium Oxide-Silica (NA)	
STOT-single exposure	May cause respiratory irritation.

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
STOT-single exposure	May cause respiratory irritation.

BisGMA (1565-94-2)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified

Triethylene Glycol Dimethacrylate (109-16-0)	
LOAEC (inhalation, rat, gas, 90 days)	350 ppm Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Remarks on results: other:
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEC (inhalation, rat, gas, 90 days)	100 ppm Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Remarks on results: other:

Aluminum Oxide (1344-28-1)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.015 mg/l air Animal: rat, Guideline: OECD Guideline 452 (Chronic Toxicity Studies)

Trimethylolpropane Trimethacrylate (3290-92-4)	
LOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
LOAEL (dermal, rat/rabbit, 90 days)	300 mg/kg bodyweight Animal: rabbit
NOAEL (oral, rat, 90 days)	300 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents), Remarks on results: other:
NOAEL (dermal, rat/rabbit, 90 days)	300 mg/kg bodyweight Animal: rabbit

Aspiration hazard : Not classified

Duo-Link Universal Base	
Viscosity, kinematic	Not applicable

Silicon Dioxide (7631-86-9)	
Viscosity, kinematic	Not applicable (solid)

Fumed Silica (68611-44-9)	
Viscosity, kinematic	Not applicable

Aluminum Oxide (1344-28-1)	
Viscosity, kinematic	Not applicable (solid)

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
Viscosity, kinematic	2.74 mm²/s (20 °C, OECD 114: Viscosity of Liquids)

Trimethylolpropane Trimethacrylate (3290-92-4)	
Viscosity, kinematic	6.166 mm²/s

Silicon Dioxide (112945-52-5)	
Viscosity, kinematic	Not applicable

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

Urethane Dimethacrylate (72869-86-4)	
LC50 - Fish [1]	10.1 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 1.2 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 0.68 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Triethylene Glycol Dimethacrylate (109-16-0)	
LC50 - Fish [1]	16.4 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	72.8 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
LOEC (chronic)	100 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	32 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Silicon Dioxide (7631-86-9)	
LC50 - Fish [1]	10000 mg/l Source: ECHA
EC50 - Crustacea [1]	> 5000 mg/l Source: ECHA
EC50 72h - Algae [1]	> 173.1 mg/l Source: ECHA

Ytterbium Fluoride (13760-80-0)	
EC50 - Crustacea [1]	> 0.52 mg/l Test organisms (species): Daphnia magna

Fumed Silica (68611-44-9)	
LC50 - Fish [1]	> 10000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	> 10000 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Experimental value, Nominal concentration)

Aluminum Oxide (1344-28-1)	
LC50 - Fish [1]	0.078 - 0.108 mg/l Source: ECHA
EC50 - Crustacea [1]	> 100 mg/l (48 h, Daphnia magna, Literature study)
EC50 72h - Algae [1]	1.05 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.2 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	> 0.024 mg/l Source: ECHA
ErC50 algae	> 100 mg/l

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
LC50 - Fish [1]	34.7 mg/l Test organisms (species): Pimephales promelas
LC50 - Fish [2]	60.9 mg/l Test organisms (species): Pimephales promelas
EC50 - Crustacea [1]	97.3 mg/l (Invertebrata, Fresh water)
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
LOEC (chronic)	97.3 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	37.2 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Trimethylolpropane Trimethacrylate (3290-92-4)	
LC50 - Fish [1]	0.731 mg/l Source: Ecological Structure Activity Relationships
EC50 - Crustacea [1]	> 9.22 mg/l Test organisms (species): Daphnia magna
ErC50 algae	3.88 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

BisGMA (1565-94-2)	
LC50 - Fish [1]	0.537 mg/l Source: ECOSAR

12.2. Persistence and degradability

Duo-Link Universal Base	
Persistence and degradability	Rapidly degradable

Urethane Dimethacrylate (72869-86-4)	
Persistence and degradability	Rapidly degradable

Triethylene Glycol Dimethacrylate (109-16-0)	
Persistence and degradability	Readily biodegradable in water.

Silicon Dioxide (7631-86-9)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Ytterbium Fluoride (13760-80-0)	
Persistence and degradability	Rapidly degradable

Ytterbium Oxide-Silica (NA)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Fumed Silica (68611-44-9)	
Persistence and degradability	Biodegradability: not applicable.

Aluminum Oxide (1344-28-1)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
Persistence and degradability	Readily biodegradable in water.

Trimethylolpropane Trimethacrylate (3290-92-4)	
Persistence and degradability	Not readily biodegradable in water, Inherently biodegradable.

BisGMA (1565-94-2)	
Persistence and degradability	Biodegradability in water: no data available.

Silicon Dioxide (112945-52-5)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

Urethane Dimethacrylate (72869-86-4)	
Partition coefficient n-octanol/water (Log Pow)	3 Source: ECHA

Triethylene Glycol Dimethacrylate (109-16-0)	
Partition coefficient n-octanol/water (Log Pow)	2.3 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Silicon Dioxide (7631-86-9)	
Bioaccumulative potential	Not bioaccumulative.

Ytterbium Fluoride (13760-80-0)	
Partition coefficient n-octanol/water (Log Pow)	0.22 Source: EPISUITE

Ytterbium Oxide-Silica (NA)	
Bioaccumulative potential	No bioaccumulation data available.

Fumed Silica (68611-44-9)	
Bioaccumulative potential	Not bioaccumulative.

Aluminum Oxide (1344-28-1)	
Bioaccumulative potential	No bioaccumulation data available.

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
Partition coefficient n-octanol/water (Log Pow)	1.76 (Experimental value, EU Method A.8: Partition Coefficient, 22.6 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Trimethylolpropane Trimethacrylate (3290-92-4)	
BCF - Fish [1]	270.1 l/kg (BCFBAF v3.01, Pisces, Fresh water, Calculated value)
Partition coefficient n-octanol/water (Log Pow)	4.193 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 25 °C)
Bioaccumulative potential	Potential for bioaccumulation (4 ≤ Log Kow ≤ 5).

BisGMA (1565-94-2)	
Partition coefficient n-octanol/water (Log Pow)	4.94 (Estimated value)
Bioaccumulative potential	No bioaccumulation data available.

Silicon Dioxide (112945-52-5)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

Urethane Dimethacrylate (72869-86-4)	
Mobility in soil	1512 Source: EPI SUITE

Triethylene Glycol Dimethacrylate (109-16-0)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.89 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

Silicon Dioxide (7631-86-9)	
Surface tension	No data available in the literature
Ecology - soil	No (test)data on mobility of the substance available.

Ytterbium Oxide-Silica (NA)	
Ecology - soil	Adsorbs into the soil.

Fumed Silica (68611-44-9)	
Ecology - soil	Low potential for mobility in soil.

Aluminum Oxide (1344-28-1)	
Surface tension	No data available in the literature
Ecology - soil	No (test)data on mobility of the substance available.

Tetrahydrofurfuryl Methacrylate (2455-24-5)	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.402 - 1.765 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

Trimethylolpropane Trimethacrylate (3290-92-4)	
Surface tension	53 mN/m (20 °C, 0.951 g/l, OECD 115: Surface Tension of Aqueous Solutions)
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	3.245 (log Koc, OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC), Experimental value, GLP)
Ecology - soil	Low potential for mobility in 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	Triethylene Glycol Dimethacrylate (109-16-0), Silicon Dioxide (7631-86-9), Aluminum Oxide (1344-28-1), Tetrahydrofurfuryl Methacrylate (2455-24-5), Trimethylolpropane Trimethacrylate (3290-92-4)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	Triethylene Glycol Dimethacrylate (109-16-0), Silicon Dioxide (7631-86-9), Aluminum Oxide (1344-28-1), Tetrahydrofurfuryl Methacrylate (2455-24-5), Trimethylolpropane Trimethacrylate (3290-92-4)

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

SECTION 14: Transport information

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

14.1. UN number or ID number

UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not applicable
UN-No. (IATA) : Not applicable
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

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

EU-Regulations

REACH Annex XVII (Restriction List)

Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)

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 (1005/2009)

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

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

Contains substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items: Aluminium oxide (1344-28-1).

Explosives Precursors Regulation (2019/1148)

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

Drug Precursors Regulation (273/2004)

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

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes		
Section	**Changed item**	**Comments**
	Revision date	**Modified**
	Supersedes version of	**Modified**
2.2	Precautionary statements (CLP)	**Modified**
3	Composition/information on ingredients	**Modified**

Full text of H- and EUH-statements:	
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
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

Safety Data Sheet (SDS), EU

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.