NextDent Cast

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 1/31/2023 Version: 1.0

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

1.1. Product identifier

Product form : Mixture
Product name : NextDent Cast
UFI : VS50-G0P4-J006-0XDG
Type of product : Resin based on acrylic esters
Product group : Trade product

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
Use of the substance/mixture : Manufacture of 3D-printed applications for the dental industry
Use of the substance/mixture : Dentistry

Title	Life cycle stage	Use descriptors
NextDent Cast	Professional	SU20

Full text of use descriptors: see section 16

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
Vertex-Dental
Centurionbaan 190
3769 AV Soesterberg
The Netherlands
T +31 886160400
info@vertex-dental.com - www.vertex-dental.com

1.4. Emergency telephone number

Emergency number : (Only for the purpose of informing medical personnel in cases of accidental intoxications. The emergency phone number is 24 hours/day available.)

Country	Official advisory body	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH	0344 892 0111	Only for healthcare professionals

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
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

May cause respiratory irritation. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS07 GHS09

Signal word (CLP) : Warning

Contains : methacrylate ester monomer; (octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate; phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 - Wear protective gloves, eye protection, face protection.
P302+P352 - IF ON SKIN: Wash with plenty of soap and 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.
P273 - Avoid release to the environment.
P391 - Collect spillage.

2.3. Other hazards

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

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 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 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Product name	Product identifier	% w/w (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate	CAS-No.: 42594-17-2 EC-No.: 255-901-3 REACH-no: 01-2120051112-76	20 – 30	Skin Sens. 1B, H317 Aquatic Chronic 2, H411
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (Note D)	CAS-No.: 7534-94-3 EC-No.: 231-403-1 REACH-no: 01-2119886505-27	20 – 30	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 3, H412

Product name	Product identifier	% w/w (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	CAS-No.: 72869-86-4 EC-No.: 276-957-5 REACH-no: 01-2120751202-68	20 – 30	Skin Sens. 1B, H317 Aquatic Chronic 2, H411
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide	CAS-No.: 162881-26-7 EC-No.: 423-340-5 EC Index-No.: 015-189-00-5 REACH-no: 01-2119489401-38	1 – 5	Skin Sens. 1, H317 Aquatic Chronic 4, H413
methacrylate ester monomer	CAS-No.: proprietary	0.1 – 1	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate	CAS-No.: 5888-33-5 EC-No.: 227-561-6 EC Index-No.: 607-756-00-6 REACH-no: 01-2119957862-25	0.1 – 1	Skin Sens. 1A, H317
2,6-di-tert-butyl-p-cresol substance with national workplace exposure limit(s) (GB)	CAS-No.: 128-37-0 EC-No.: 204-881-4 REACH-no: 01-2119565113-46 / 01-2119480433-40	0.1 – 1	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 (M=1)

Note D: Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words 'non-stabilised'.

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 : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Allow affected person to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Immediately rinse with water for a prolonged period while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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 : 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 : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

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

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Store away from other materials.

6.4. Reference to other sections

Concerning personal protective equipment to use, see section 8. Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
Hygiene measures : Wash hands thoroughly after handling. 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 : Keep only in original container. Keep container closed when not in use. To avoid the risks of fires, all contaminated materials should be stored in purpose-built containers or in metal containers with tight-fitting self-closing lids.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.

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

2,6-di-tert-butyl-p-cresol (128-37-0)	
United Kingdom - Occupational Exposure Limits	
Local name	2,6-Di-tert-butyl-p-cresol
WEL TWA (OEL TWA) [1]	10 mg/m³
WEL STEL (OEL STEL)	30 mg/m³ (calculated)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

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

(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate (42594-17-2)	
PNEC (Water)	
PNEC aqua (freshwater)	1.6 µg/l
PNEC aqua (marine water)	0.16 µg/l
PNEC aqua (intermittent, freshwater)	16 µg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.6576 mg/kg dwt
PNEC sediment (marine water)	0.06576 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.1306 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	10 mg/l

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	1.3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3.3 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	0.6 mg/m³
Long-term - systemic effects, dermal	0.7 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.01 mg/l
PNEC aqua (marine water)	0.001 mg/l
PNEC aqua (intermittent, freshwater)	0.1 mg/l
PNEC aqua (intermittent, marine water)	0.1 mg/l

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
PNEC (Sediment)	
PNEC sediment (freshwater)	4.56 mg/kg dwt
PNEC sediment (marine water)	0.46 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.91 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	3.61 mg/l

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	3.33 mg/kg bodyweight/day
Acute - systemic effects, inhalation	7.84 mg/m³
Long-term - systemic effects, dermal	3.33 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	7.84 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	1.67 mg/kg bodyweight/day
Acute - systemic effects, inhalation	3.92 mg/m³
Acute - systemic effects, oral	1.67 mg/kg bodyweight/day
Long-term - systemic effects,oral	1.67 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3.92 mg/m³
Long-term - systemic effects, dermal	1.67 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.8 µg/l
PNEC aqua (marine water)	0.8 µg/l
PNEC aqua (intermittent, freshwater)	0.8 µg/l
PNEC aqua (intermittent, marine water)	0.0008 – 0.001 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.712 mg/kg dwt
PNEC sediment (marine water)	0.712 mg/kg dwt
PNEC (Soil)	
PNEC soil	20 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	1 mg/l

2,6-di-tert-butyl-p-cresol (128-37-0)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	0.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3.5 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.25 mg/kg bodyweight/day

2,6-di-tert-butyl-p-cresol (128-37-0)	
Long-term - systemic effects, inhalation	0.86 mg/m³
Long-term - systemic effects, dermal	0.25 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.000199 mg/l
PNEC aqua (marine water)	0.0000199 mg/l
PNEC aqua (intermittent, freshwater)	0.00199 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.0996 mg/kg dwt
PNEC sediment (marine water)	0.00996 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.04769 mg/kg dwt
PNEC (Oral)	
PNEC oral (secondary poisoning)	8.33 mg/kg
PNEC (STP)	
PNEC sewage treatment plant	0.17 mg/l

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate (5888-33-5)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	1.39 mg/kg bodyweight/day
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.83 mg/kg bodyweight/day
Long-term - systemic effects, dermal	0.83 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.00092 mg/l
PNEC aqua (marine water)	0.000092 mg/l
PNEC aqua (intermittent, freshwater)	0.00704 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.145 mg/kg dwt
PNEC sediment (marine water)	0.0145 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.0285 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	2 mg/l

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	1.04 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	1.22 mg/m³
DNEL/DMEL (General population)	
Long-term - systemic effects,oral	0.21 mg/kg bodyweight/day

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
Long-term - systemic effects, inhalation	0.36 mg/m³
Long-term - systemic effects, dermal	0.625 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.00466 mg/l
PNEC aqua (marine water)	0.00000466 mg/l
PNEC aqua (intermittent, freshwater)	0.0179 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	0.604 mg/kg dwt
PNEC sediment (marine water)	0.0604 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.118 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	2.45 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

Personal protective equipment:
Gloves. Safety glasses. Protective clothing.

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Wear safety glasses with side shields (EN 166)

8.2.2.2. Skin protection

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

Hand protection:
Wear suitable gloves resistant to chemical penetration. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374. penetration time (maximum wearing period): > 480 m. Suitable material: butyl rubber. Layer thickness : 0,3 mm . If there is a risk of liquid being splashed : Nitrile rubber gloves Incidental

8.2.2.3. Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment. In case of repeated or prolonged exposure : Combination filtering device (DIN EN 141). High gas/vapour concentration: gas mask with filter type A

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Use appropriate container to avoid environmental contamination.

Other information:
Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Blue.
Appearance	:	Viscous.
Odour	:	characteristic. Methyl methacrylate.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Non flammable.
Explosive limits	:	Not available
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	Not available
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	Not available
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 available
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

VOC content	:	0 %

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

Direct sunlight. Extremely high or low temperatures.

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

(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate (42594-17-2)	
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: other:

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
LD50 oral rat	5000 mg/kg
LD50 dermal rat	2000 mg/kg

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Remarks on results: other:
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Remarks on results: other:

2,6-di-tert-butyl-p-cresol (128-37-0)	
LD50 oral rat	> 2930 mg/kg
LD50 dermal rat	> 2000 mg/kg

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate (5888-33-5)	
LD50 dermal rabbit	> 3000 mg/kg bodyweight Animal: rabbit, Animal sex: male, Guideline: other:pre-guideline

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
LD50 oral rat	3.16 – 6.81 ml/kg

Skin corrosion/irritation : Causes skin irritation.
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Not classified
Additional information : Based on available data, the classification criteria are not met

2,6-di-tert-butyl-p-cresol (128-37-0)	
IARC group	3 - Not classifiable

2,6-di-tert-butyl-p-cresol (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 : Not classified
Additional information : Based on available data, the classification criteria are not met
STOT-single exposure : May cause respiratory irritation.

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified
Additional information : Based on available data, the classification criteria are not met

(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate (42594-17-2)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents), Guideline: EU Method B.7 (Repeated Dose (28 Days) Toxicity (Oral))

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
NOAEL (oral, rat, 90 days)	100 – 300 mg/kg bodyweight/day

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
NOAEL (oral, rat, 90 days)	> 1000 mg/kg bodyweight Animal: rat, Guideline: other:92/69/eec

2,6-di-tert-butyl-p-cresol (128-37-0)	
LOAEL (oral, rat, 90 days)	15 – 1000 mg/kg bodyweight/day
NOAEL (oral, rat, 90 days)	25 – 70 mg/kg bodyweight/day

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate (5888-33-5)	
NOAEL (oral, rat, 90 days)	100 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
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)	25 – 500 mg/kg bodyweight/day
NOAEC (inhalation, rat, gas, 90 days)	100 ppm Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study), Remarks on results: other:

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

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
Viscosity, kinematic	4.61 – 8.39 mm²/s

11.2. Information on other hazards

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

methacrylate ester monomer (proprietary)	
LC50 - Fish [1]	227 mg/l
EC50 - Crustacea [1]	> 380 mg/l

(octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate (42594-17-2)	
LC50 - Fish [1]	1.65 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	2.36 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	1.6 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.71 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
LC50 - Fish [1]	10.1 mg/l
EC50 - Crustacea [1]	1.2 mg/l
EC50 72h - Algae [1]	0.68 mg/l
NOEC (acute)	1.2 mg/l 48 hrs

phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
LC50 - Fish [1]	> 90 µg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	> 1175 µg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	> 1175 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 0.26 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
LOEC (chronic)	0.008 mg/l
NOEC (chronic)	0.008 mg/l 21 d
NOEC chronic algae	0.26 mg/l

2,6-di-tert-butyl-p-cresol (128-37-0)	
LC50 - Fish [1]	0.199 mg/l
EC50 - Crustacea [1]	0.48 – 0.61 mg/l
EC50 72h - Algae [1]	6 mg/l (Species: Pseudokirchneriella subcapitata)
EC50 72h - Algae [2]	> 0.42 mg/l (Species: Desmodesmus subspicatus)
LOEC (chronic)	1 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	0.023 – 0.361 mg/l (21 d)
NOEC chronic fish	0.053 mg/l (42 d)

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate (5888-33-5)	
LC50 - Fish [1]	0.704 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 72h - Algae [1]	1.98 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	0.596 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
LOEC (chronic)	0.277 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	0.092 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
LC50 - Fish [1]	1.79 mg/l
EC50 - Crustacea [1]	2.57 mg/l
EC50 72h - Algae [1]	2.28 mg/l

Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
EC50 96h - Algae [1]	2.66 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [2]	0.913 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
LOEC (chronic)	0.428 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	0.233 mg/l (21 d)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

NextDent Cast	
Bioaccumulative potential	Not established.
methacrylate ester monomer (proprietary)	
Partition coefficient n-octanol/water (Log Pow)	0.47
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate (72869-86-4)	
Partition coefficient n-octanol/water (Log Pow)	3 – 3.39 @ 20 °C and pH 7
phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide (162881-26-7)	
Partition coefficient n-octanol/water (Log Pow)	4.65 – 5.8 @ 20-22 °C and pH 7.5
2,6-di-tert-butyl-p-cresol (128-37-0)	
BCF - Fish [1]	230 – 2500
Partition coefficient n-octanol/water (Log Pow)	5.1
Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate (7534-94-3)	
Partition coefficient n-octanol/water (Log Pow)	5.09

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

Additional information : Avoid release to the environment.

SECTION 13: Disposal considerations

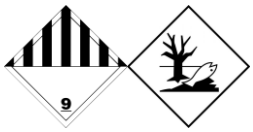
13.1. Waste treatment methods

Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations : Can be dumped in according to local regulations.
Ecology - waste materials : Avoid release to the environment.

HP Code : HP5 - “Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:” waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.
HP4 - “Irritant – skin irritation and eye damage:” waste which on application can cause skin irritation or damage to the eye.
HP13 - “Sensitising:” waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.
HP14 - “Ecotoxic:” waste which presents or may present immediate or delayed risks for one or more sectors of the environment

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol)	Environmentally hazardous substance, liquid, n.o.s. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol)
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. ((octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; 2,6-di-tert-butyl-p-cresol), 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III

ADR	IMDG	IATA	ADN	RID
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)	:	5l
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
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. 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

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)

Reference code	Applicable on	Entry title or description
3(b)	NextDent Cast ; (octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl acrylate ; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

EU restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
3(c)	NextDent Cast ; (octahydro-4,7-methano-1H-indenediyl)bis(methylene) diacrylate ; 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate ; Exo-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl methacrylate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1

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)

VOC Directive (2004/42)

VOC content : 0 %

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)

15.1.2. 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)

Abbreviations and acronyms:	
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)
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

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Full text of H- and EUH-statements:	
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Aquatic Chronic 4	Hazardous to the aquatic environment – Chronic Hazard, Category 4
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.
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.
H413	May cause long lasting harmful effects to aquatic life.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A
Skin Sens. 1B	Skin sensitisation, category 1B
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Full text of use descriptors	
SU20	Health services

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
STOT SE 3	H335	Calculation method
Aquatic Chronic 2	H411	Calculation method

The classification complies with : ATP 12

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.