SoloCem

Coltène/Whaledent AG

Version No: **4.4**
Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: **30/06/2023**
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L.REACH.GB.EN

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

1.1. Product Identifier

Product name	SoloCem
Chemical Name	Not Applicable
Synonyms	Not Available
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains zinc oxide)
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	Medical device, for dental use only
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Coltène/Whaledent AG**
Address	Feldwiesenstrasse 20 Altstätten 9450 Switzerland
Telephone	+41 (71) 75 75 300
Fax	+41 (71) 75 75 301
Website	www.coltene.com
Email	msds@coltene.com

1.4. Emergency telephone number

Association / Organisation	**CHEMWATCH EMERGENCY RESPONSE (24/7)**
Emergency telephone number(s)	+44 20 3901 3542
Other emergency telephone number(s)	+44 808 164 9592

Once connected and if the message is not in your preferred language then please dial 01

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]	H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1, H319 - Serious Eye Damage/Eye Irritation Category 2, H335 - Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H411 - Hazardous to the Aquatic Environment Long-Term Hazard Category 2
Legend:	***1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567***

2.2. Label elements

Hazard pictogram(s)	

Signal word	**Warning**

Hazard statement(s)

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.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P271	Use only a well-ventilated area.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P273	Avoid release to the environment.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P302+P352	IF ON SKIN: Wash with plenty of water and soap.
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/physician/first aider/if you feel unwell.
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.
P391	Collect spillage.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Precautionary statement(s) Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

Material contains ytterbium(III) fluoride, triethylene glycol dimethacrylate, diurethane dimethacrylate, bisphenol A dimethacrylate, ethoxylated.

2.3. Other hazards

Ingestion may produce health damage*.

Limited evidence of a carcinogenic effect*.

bisphenol A dimethacrylate, ethoxylated	Determined to have endocrine-disrupting properties according to Europe Regulation (EU) 528/2012, Europe Regulation (EU) 2017/2100, and Europe Regulation (EU) 2018/605

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 109-16-0 2.203-652-6 3.Not Available 4.Not Available	5-10	triethylene glycol dimethacrylate	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H315, H317, H319, H335 [1]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 72869-86-4 2.276-957-5 3.Not Available 4.Not Available	5-10	diurethane dimethacrylate	Sensitisation (Skin) Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H317, H411 [1]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 41637-38-1 2.Not Available 3.Not Available 4.Not Available	5-10	bisphenol A dimethacrylate, ethoxylated **[e]**	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H315, H317, H319, H335 [1]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 868-77-9 2.212-782-2 3.607-124-00-X 4.Not Available	1-5	2-hydroxyethyl methacrylate	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H315, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 1314-13-2 2.215-222-5 3.030-013-00-7 4.Not Available	<2	zinc oxide	Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H400, H410 [2]	SCL: Not Available Acute M factor: 10 Chronic M factor: 1	Not Available
1. 13760-80-0 2.237-354-2 3.Not Available 4.Not Available	15-25	ytterbium(III) fluoride *	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure Category 3; H315, H319, H335 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 128-37-0 2.204-881-4 3.Not Available 4.None	0.1	2,6-di-tert-butyl-4-methylphenol	Hazardous to the Aquatic Environment Long-Term Hazard Category 1; H410 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: 1	Not Available
1. 85590-00-7 2.Not Available 3.Not Available 4.Not Available	1-5	10-methacryloyloxydecyl dihydrogen phosphate	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-	SCL: Not Available Acute M factor: Not Applicable	Not Available

1. CAS No 2.EC No 3.Index No 4.REACH No	% [weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
			Term Hazard Category 4; H315, H317, H319, H335, H413 [1]	Chronic M factor: Not Applicable	
1. 94-36-0 2.202-327-6 3.617-008-00-0 4.Not Available	<1	dibenzoyl peroxide	Organic Peroxides Type B, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2; H241, H317, H319 [2]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 70293-55-9 2.274-547-0 3.Not Available 4.Not Available	5-10	4-methacryloxyethyl trimellitic anhydride	Acute Tox. 4, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure Category 3; H302, H315, H317, H319, H335 [3]	SCL: Not Available Acute M factor: Not Applicable Chronic M factor: Not Applicable	Not Available
1. 131-57-7 2.205-031-5 3.Not Available 4.Not Available	0.1	oxybenzone	Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H400, H411 [1]	SCL: Not Available Acute M factor: 10 Chronic M factor: Not Applicable	Not Available

Legend:	***1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties***

SECTION 4 First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested.
Ingestion	▸ If swallowed do **NOT** induce vomiting. ▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▸ Observe the patient carefully. ▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▸ Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

Treat symptomatically.

SECTION 5 Firefighting measures

5.1. Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	‣ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	‣ Alert Fire Brigade and tell them location and nature of hazard. ‣ May be violently or explosively reactive. ‣ Wear full body protective clothing with breathing apparatus. ‣ Prevent, by any means available, spillage from entering drains or water course. ‣ Fight fire from a safe distance, with adequate cover. ‣ If safe, switch off electrical equipment until vapour fire hazard removed. ‣ Use water delivered as a fine spray to control the fire and cool adjacent area. ‣ Avoid spraying water onto liquid pools. ‣ **Do not** approach containers suspected to be hot. ‣ Cool fire exposed containers with water spray from a protected location. ‣ If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	Brännbar. Kommer att brinna om den antänds. Combustion products include: , carbon monoxide (CO) , carbon dioxide (CO2) , hydrogen fluoride , metal oxides , other pyrolysis products typical of burning organic material.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	Environmental hazard - contain spillage. ‣ Clean up all spills immediately. ‣ Avoid contact with skin and eyes. ‣ Wear impervious gloves and safety goggles. ‣ Trowel up/scrape up. ‣ Place spilled material in clean, dry, sealed container. ‣ Flush spill area with water.
Major Spills	‣ Clear area of personnel and move upwind. ‣ Alert Fire Brigade and tell them location and nature of hazard. ‣ Wear breathing apparatus plus protective gloves. ‣ Prevent, by any means available, spillage from entering drains or water course. ‣ Stop leak if safe to do so. ‣ Contain spill with sand, earth or vermiculite. ‣ Collect recoverable product into labelled containers for recycling. ‣ Neutralise/decontaminate residue (see Section 13 for specific agent). ‣ Collect solid residues and seal in labelled drums for disposal. ‣ Wash area and prevent runoff into drains. ‣ After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. ‣ If contamination of drains or waterways occurs, advise emergency services. Environmental hazard - contain spillage.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Safe handling	‣ Avoid all personal contact, including inhalation. ‣ Wear protective clothing when risk of exposure occurs. ‣ Use in a well-ventilated area. ‣ Prevent concentration in hollows and sumps. ‣ Avoid contact with incompatible materials. ‣ When handling, **DO NOT** eat, drink or smoke. ‣ Keep containers securely sealed when not in use. ‣ Avoid physical damage to containers. ‣ Always wash hands with soap and water after handling. ‣ Work clothes should be laundered separately. Launder contaminated clothing before re-use. ‣ Use good occupational work practice. ‣ Observe manufacturer's storage and handling recommendations contained within this SDS. ‣ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Fire and explosion protection	See section 5
Other information	‣ Store in original containers. ‣ Keep containers securely sealed. ‣ Store in a cool, dry, well-ventilated area. ‣ Store away from incompatible materials and foodstuff containers. ‣ Protect containers against physical damage and check regularly for leaks. ‣ Observe manufacturer's storage and handling recommendations contained within this SDS.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	Recommended storage temperature: 4 - 8 °C ‣ Packaging as recommended by manufacturer. ‣ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Substances sensitive to light. for multifunctional acrylates: ‣ Avoid exposure to free radical initiators (peroxides, persulfates) , iron, rust, oxidisers, and strong acids and strong bases. ‣ Avoid heat, flame, sunlight, X-rays or ultra-violet radiation. ‣ Storage beyond expiration date, may initiate polymerisation. Polymerisation of large quantities may be violent (even explosive)
Hazard categories in accordance with Regulation (EC) No 2012/18/EU (Seveso III)	E2: Hazardous to the Aquatic Environment in Category Chronic 2
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	E2 Lower- / Upper-tier requirements: 200 / 500

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
triethylene glycol dimethacrylate	Dermal 13.9 mg/kg bw/day (Systemic, Chronic) Inhalation 48.5 mg/m³ (Systemic, Chronic) ***Dermal 8.33 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.0145 mg/m³ (Systemic, Chronic) **** ***Oral 8.33 mg/kg bw/day (Systemic, Chronic) ****	0.016 mg/L (Water (Fresh)) 0.016 mg/L (Water - Intermittent release) 0.002 mg/L (Water (Marine)) 0.185 mg/kg sediment dw (Sediment (Fresh Water)) 0.018 mg/kg sediment dw (Sediment (Marine)) 0.027 mg/kg soil dw (Soil) 1.7 mg/L (STP)
diurethane dimethacrylate	Dermal 1.3 mg/kg bw/day (Systemic, Chronic) Inhalation 3.3 mg/m³ (Systemic, Chronic) ***Dermal 0.7 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.0006 mg/m³ (Systemic, Chronic) **** ***Oral 0.3 mg/kg bw/day (Systemic, Chronic) ****	0.01 mg/L (Water (Fresh)) 0.1 mg/L (Water - Intermittent release) 0.001 mg/L (Water (Marine)) 4.56 mg/kg sediment dw (Sediment (Fresh Water)) 0.46 mg/kg sediment dw (Sediment (Marine)) 0.91 mg/kg soil dw (Soil) 3.61 mg/L (STP)

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
2-hydroxyethyl methacrylate	Dermal 1.39 mg/kg bw/day (Systemic, Chronic) Inhalation 4.9 mg/m³ (Systemic, Chronic) ***Dermal 0.83 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.00145 mg/m³ (Systemic, Chronic) **** ***Oral 0.83 mg/kg bw/day (Systemic, Chronic) ****	0.482 mg/L (Water (Fresh)) 1 mg/L (Water - Intermittent release) 0.048 mg/L (Water (Marine)) 3.79 mg/kg sediment dw (Sediment (Fresh Water)) 3.79 mg/kg sediment dw (Sediment (Marine)) 0.476 mg/kg soil dw (Soil) 10 mg/L (STP)
zinc oxide	Dermal 83 mg/kg bw/day (Systemic, Chronic) Inhalation 5 mg/m³ (Systemic, Chronic) ***Dermal 83 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.0025 mg/m³ (Systemic, Chronic) **** ***Oral 0.83 mg/kg bw/day (Systemic, Chronic) ****	0.00019 mg/L (Water (Fresh)) 0.00114 mg/L (Water (Marine)) 18 mg/kg sediment dw (Sediment (Fresh Water)) 6.4 mg/kg sediment dw (Sediment (Marine)) 0.9 mg/kg soil dw (Soil) 0.02 mg/L (STP) 0.16 mg/kg food (Oral)
2,6-di-tert-butyl-4-methylphenol	Dermal 0.5 mg/kg bw/day (Systemic, Chronic) Inhalation 1.76 mg/m³ (Systemic, Chronic) ***Dermal 0.25 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.000435 mg/m³ (Systemic, Chronic) **** ***Oral 0.25 mg/kg bw/day (Systemic, Chronic) ****	0.000199 mg/L (Water (Fresh)) 0.00199 mg/L (Water - Intermittent release) 0.00002 mg/L (Water (Marine)) 0.458 mg/kg sediment dw (Sediment (Fresh Water)) 0.046 mg/kg sediment dw (Sediment (Marine)) 0.054 mg/kg soil dw (Soil) 0.017 mg/L (STP) 16.67 mg/kg food (Oral)
dibenzoyl peroxide	Dermal 13.3 mg/kg bw/day (Systemic, Chronic) Inhalation 39 mg/m³ (Systemic, Chronic) Dermal 0.034 mg/cm² (Local, Chronic) ***Oral 2 mg/kg bw/day (Systemic, Chronic) ****	0.00002 mg/L (Water (Fresh)) 0.000602 mg/L (Water - Intermittent release) 0.000002 mg/L (Water (Marine)) 0.013 mg/kg sediment dw (Sediment (Fresh Water)) 0.001 mg/kg sediment dw (Sediment (Marine)) 0.003 mg/kg soil dw (Soil) 0.35 mg/L (STP)
oxybenzone	Dermal 39 mg/kg bw/day (Systemic, Chronic) Inhalation 27.7 mg/m³ (Systemic, Chronic) ***Dermal 20 mg/kg bw/day (Systemic, Chronic) **** ***Inhalation 0.0068 mg/m³ (Systemic, Chronic) **** ***Oral 2 mg/kg bw/day (Systemic, Chronic) ****	0.00067 mg/L (Water (Fresh)) 0.0067 mg/L (Water - Intermittent release) 0.000067 mg/L (Water (Marine)) 0.066 mg/kg sediment dw (Sediment (Fresh Water)) 0.007 mg/kg sediment dw (Sediment (Marine)) 0.013 mg/kg soil dw (Soil) 10 mg/L (STP)

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	ytterbium(III) fluoride	Fluoride (inorganic as F)	2.5 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	2,6-di-tert-butyl-4-methylphenol	2,6-Di-tert-butyl-p-cresol	10 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	dibenzoyl peroxide	Dibenzoyl peroxide	5 mg/m3	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
triethylene glycol dimethacrylate	Not Available	Not Available
diurethane dimethacrylate	Not Available	Not Available
bisphenol A dimethacrylate, ethoxylated	Not Available	Not Available
2-hydroxyethyl methacrylate	Not Available	Not Available
zinc oxide	500 mg/m3	Not Available
ytterbium(III) fluoride	Not Available	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available	Not Available
10-methacryloyloxydecyl dihydrogen phosphate	Not Available	Not Available
dibenzoyl peroxide	1,500 mg/m3	Not Available
4-methacryloxyethyl trimellitic anhydride	Not Available	Not Available
oxybenzone	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
triethylene glycol dimethacrylate	E	≤ 0.1 ppm
diurethane dimethacrylate	E	≤ 0.1 ppm
bisphenol A dimethacrylate, ethoxylated	E	≤ 0.1 ppm
2-hydroxyethyl methacrylate	E	≤ 0.1 ppm
zinc oxide	E	≤ 0.01 mg/m³
10-methacryloyloxydecyl dihydrogen phosphate	E	≤ 0.1 ppm
4-methacryloxyethyl trimellitic anhydride	E	≤ 0.01 mg/m³
Notes:	***Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.***	

MATERIAL DATA

IFRA Prohibited Fragrance Substance
The International Fragrance Association (IFRA) Standards form the basis for the globally accepted and recognized risk management system for the safe use of fragrance ingredients and are part of the IFRA Code of Practice. This is the self-regulating system of the industry, based on risk assessments carried out by an independent Expert Panel
for zinc oxide:
Zinc oxide intoxication (intoxication zincale) is characterised by general depression, shivering, headache, thirst, colic and diarrhoea.
Exposure to the fume may produce metal fume fever characterised by chills, muscular pain, nausea and vomiting. Short-term studies with guinea pigs show pulmonary function changes and morphologic evidence of small airway inflammation. A no-observed-adverse-effect level (NOAEL) in guinea pigs was 2.7 mg/m3 zinc oxide. Based on present data, the current TLV-TWA may be inadequate to protect exposed workers although known physiological differences in the guinea pig make it more susceptible to functional impairment of the airways than humans.
Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen
[***National Toxicology Program: U.S. Dep. of Health & Human Services 2002***]
CEL TWA: 1 mg/m3 [compare WEEL-TWA* for multifunctional acrylates (MFAs)]
(CEL = Chemwatch Exposure Limit)
Exposure to MFAs has been reported to cause contact dermatitis in humans and serious eye injury in laboratory animals. Exposure to some MFA-resin containing aerosols has also been reported to cause dermatitis. As no assessment of the possible effects of long-term exposure to aerosols was found, a conservative Workplace Environmental Exposure Level (WEEL) was suggested by the American Industrial Hygiene Association (AIHA).
These exposure guidelines have been derived from a screening level of risk assessment and should not be construed as unequivocally safe limits. ORGS represent an 8-hour time-weighted average unless specified otherwise.
CR = Cancer Risk/10000; UF = Uncertainty factor:
TLV believed to be adequate to protect reproductive health:
LOD: Limit of detection
Toxic endpoints have also been identified as:
D = Developmental; R = Reproductive; TC = Transplacental carcinogen
Jankovic J., Drake F.: A Screening Method for Occupational Reproductive
American Industrial Hygiene Association Journal 57: 641-649 (1996)

Exposed individuals are **NOT** reasonably expected to be warned, by smell, that the Exposure Standard is being exceeded.

Odour Safety Factor (OSF) is determined to fall into either Class C, D or E.

The Odour Safety Factor (OSF) is defined as:

OSF= Exposure Standard (TWA) ppm/ Odour Threshold Value (OTV) ppm

Classification into classes follows:

Class	OSF	Description
A	550	Over 90% of exposed individuals are aware by smell that the Exposure Standard (TLV-TWA for example) is being reached, even when distracted by working activities
B	26-550	As "A" for 50-90% of persons being distracted
C	1-26	As "A" for less than 50% of persons being distracted
D	0.18-1	10-50% of persons aware of being tested perceive by smell that the Exposure Standard is being reached
E	<0.18	As "D" for less than 10% of persons aware of being tested

as ytterbium
CEL TWA: 1 mg/m3 (compare TLV-TWA yttrium)
(CEL = Chemwatch Exposure Limit)
Exposure to the vapours of some rare earth salts reportedly produces sensitivity to heat, itching and an increased perception of odour and taste. Other effects may include bronchiolitis, subacute bronchitis, acute transient chemical pneumonitis, focal hypertrophic emphysema, regional bronchiolar stricturing and cellular eosinophilia.
In rare fatal cases of exposure to the rare-earth fluoride and/or oxide mixtures, delayed chemical hyperaemia has occurred. Lung granulomas have also been seen in experimental animals.
2,6-di-tert-butyl-4-methylphenol (syn: butylated hydroxytoluene - BHT)

Because high dose levels are required to produce toxic effects and because there is little evidence of either acute or chronic effects amongst workers the recommended TLV-TWA is identical to that proposed for nuisance particulates.

For benzoyl peroxide:
The recommendation for the TLV-TWA is based on the absence of subjective symptoms of irritation of the nose and throat in humans exposed to 5.25 mg/m3. Whether this is sufficiently low to prevent cumulative effects in man is not known.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection

- Safety glasses with side shields.
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

Skin protection

See Hand protection below

Hands/feet protection

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Body protection

See Other protection below

Other protection	▸ Overalls. ▸ P.V.C apron. ▸ Barrier cream. ▸ Skin cleansing cream. ▸ Eye wash unit.

Respiratory protection

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AK-AUS P2	-	AK-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AK-AUS / Class 1 P2	-
up to 100 x ES	-	AK-2 P2	AK-PAPR-2 P2 ^

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not Available

Physical state	Free-flowing Paste	**Relative density (Water = 1)**	2.1
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Heat of Combustion (kJ/g)	Not Available	**Ignition Distance (cm)**	Not Available
Flame Height (cm)	Not Available	**Flame Duration (s)**	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	**Enclosed Space Ignition Deflagration Density (g/m3)**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on toxicological effects

SoloCem	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
triethylene glycol dimethacrylate	**TOXICITY**	**IRRITATION**
	Oral (Mouse) LD50; 10750 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: 10837 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
diurethane dimethacrylate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg *[2]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: >2000 mg/kg *[2]	Skin: no adverse effect observed (not irritating)[1]
bisphenol A dimethacrylate, ethoxylated	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
2-hydroxyethyl methacrylate	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >3000 mg/kg[2]	Eye (rabbit): SEVERE *post-exposure
	Oral (Rat) LD50: >=2000 mg/kg[1]	Eye: adverse effect observed (irritating)[1]
		Skin (rabbit): non-irritating* * Rohm & Haas
		Skin: no adverse effect observed (not irritating)[1]
zinc oxide	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit) : 500 mg/24 h - mild
	Inhalation(Rat) LC50: >1.79 mg/l4h[1]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: >5000 mg/kg[1]	Skin (rabbit) : 500 mg/24 h- mild
		Skin: no adverse effect observed (not irritating)[1]
ytterbium(III) fluoride	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: >2000 mg/kg[1]	Skin: no adverse effect observed (not irritating)[1]
2,6-di-tert-butyl-4-methylphenol	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 100 mg/24h-moderate
	Oral (Rat) LD50: 890 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin (human): 500 mg/48h - mild
		Skin (rabbit):500 mg/48h-moderate
		Skin: no adverse effect observed (not irritating)[1]
10-methacryloyloxydecyl dihydrogen phosphate	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
dibenzoyl peroxide	**TOXICITY**	**IRRITATION**

	dermal (mammal) LD50: >1000 mg/kg[2]	Eye (rabbit): 500 mg/24h - mild
	Oral (Rat) LD50: 7710 mg/kg[2]	Skin effects (MAK): very weak (@ 50%)

4-methacryloxyethyl trimellitic anhydride	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: >2000 mg/kg[2]	Not Available

oxybenzone	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >16000 mg/kg *[2]	Not Available
	Oral (Rat) LD50: >12800 mg/kg *[2]	
	Oral (Rat) LD50: 7400 mg/kg[2]	

Legend:	***1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances***

SoloCem	The various members of the bisphenol family produce hormone like effects, seemingly as a result of binding to estrogen receptor-related receptors (ERRs; not to be confused with estrogen receptors) A suspected estrogen-related receptors (ERR) binding agent: Estrogen-related receptors (ERR, oestrogen-related receptors) are so named because of sequence homology with estrogen receptors but do not appear to bind estrogens or other tested steroid hormones. The ERR family have been demonstrated to control energy homeostasis, oxidative metabolism and mitochondrial biogenesis ,while effecting mammalian physiology in the heart, brown adipose tissue, white adipose tissue, placenta, macrophages, and demonstrated additional roles in diabetes and cancer. ERRs bind enhancers throughout the genome where they exert effects on gene regulation Although their overall functions remain uncertain, they also share DNA-binding sites, co-regulators, and target genes with the conventional estrogen receptors ERalpha and ERbeta and may function to modulate estrogen signaling pathways. · ERR-alpha has wide tissue distribution but it is most highly expressed in tissues that preferentially use fatty acids as energy sources such as kidney, heart, brown adipose tissue, cerebellum, intestine, and skeletal muscle. ERRalpha has been detected in normal adrenal cortex tissues, in which its expression is possibly related to adrenal development, with a possible role in fetal adrenal function, in dehydroepiandrosterone (DHEAS) production in adrenarche, and also in steroid production of post-adrenarche/adult life. DHEA and other adrenal androgens such as androstenedione, although relatively weak androgens, are responsible for the androgenic effects of adrenarche, such as early pubic and axillary hair growth, adult-type body odor, increased oiliness of hair and skin, and mild acne. · ERR-beta is a nuclear receptor . Its function is unknown; however, a similar protein in mouse plays an essential role in placental development · ERR-gamma is a nuclear receptor that behaves as a constitutive activator of transcription. There is evidence that bisphenol A functions as an endocrine disruptor by binding strongly to ERRgamma BPA as well as its nitrated and chlorinated metabolites seems to binds strongly to ERR-gamma (dissociation constant = 5.5 nM), but not to the estrogen receptor (ER). BPA binding to ERR-gamma preserves its basal constitutive activity.Different expression of ERR-gamma in different parts of the body may account for variations in bisphenol A effects. For instance, ERR-gamma has been found in high concentration in the placenta, explaining reports of high bisphenol A accumulation there
SoloCem & triethylene glycol dimethacrylate & diurethane dimethacrylate & BISPHENOL A DIMETHACRYLATE, ETHOXYLATED & 2-HYDROXYETHYL METHACRYLATE & 2,6-DI-TERT-BUTYL-4-METHYLPHENOL & 10-METHACRYLOYLOXYDECYL DIHYDROGEN PHOSPHATE & DIBENZOYL PEROXIDE & 4-METHACRYLOXYETHYL TRIMELLITIC ANHYDRIDE & oxybenzone	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
ZINC OXIDE & DIBENZOYL PEROXIDE	The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✓	**Reproductivity**	✗
Serious Eye Damage/Irritation	✓	**STOT - Single Exposure**	✓
Respiratory or Skin sensitisation	✓	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ ***Data either not available or does not fill the criteria for classification***

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

Many chemicals may mimic or interfere with the body's hormones, known as the endocrine system. Endocrine disruptors are chemicals that can interfere with endocrine (or hormonal) systems. Endocrine disruptors interfere with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body. Any system in the body controlled by hormones can be derailed by hormone disruptors. Specifically, endocrine disruptors may be associated with the development of learning disabilities, deformations of the body various cancers and sexual development problems. Endocrine disrupting chemicals cause adverse effects in animals. But limited scientific information exists on potential health problems in humans. Because people are typically exposed to multiple endocrine disruptors at the same time, assessing public health effects is difficult.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

SoloCem

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

triethylene glycol dimethacrylate

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	72.8mg/l	2
NOEC(ECx)	72h	Algae or other aquatic plants	18.6mg/l	2
LC50	96h	Fish	16.4mg/l	2

diurethane dimethacrylate

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>0.68mg/l	2
NOEC(ECx)	72h	Algae or other aquatic plants	0.21mg/l	2
EC50	48h	Crustacea	>1.2mg/L	2
LC50	96h	Fish	10.1mg/l	2

bisphenol A dimethacrylate, ethoxylated

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	504h	Crustacea	>=0.022mg/L	2

2-hydroxyethyl methacrylate

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	345mg/l	2
EC50	48h	Crustacea	380mg/l	2
NOEC(ECx)	504h	Crustacea	24.1mg/l	2
LC50	96h	Fish	>100mg/l	2

zinc oxide

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	96h	Algae or other aquatic plants	0.042mg/L	2
BCF	1344h	Fish	19-110	7
EC50	72h	Algae or other aquatic plants	0.022mg/L	2
EC10(ECx)	168h	Algae or other aquatic plants	0.003mg/L	2
EC50	48h	Crustacea	0.105mg/L	2
ErC50	72h	Algae or other aquatic plants	0.62mg/l	2
LC50	96h	Fish	0.102mg/L	2

ytterbium(III) fluoride

Endpoint	Test Duration (hr)	Species	Value	Source
NOEC(ECx)	48h	Crustacea	0.52mg/l	2
EC50	48h	Crustacea	>0.52mg/l	2

2,6-di-tert-butyl-4-methylphenol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	96h	Algae or other aquatic plants	0.758mg/l	2
BCF	1344h	Fish	220-2800	7
EC50	72h	Algae or other aquatic plants	>0.42mg/l	1
EC0(ECx)	48h	Crustacea	>=0.31mg/l	1
EC50	48h	Crustacea	>0.17mg/l	2

	ErC50	72h	Algae or other aquatic plants	>0.42mg/l	1
	LC50	96h	Fish	0.199mg/l	2

10-methacryloyloxydecyl dihydrogen phosphate	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

dibenzoyl peroxide	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50	72h	Algae or other aquatic plants	0.042mg/l	2
	LC50	96h	Fish	0.06mg/l	2
	EC50	48h	Crustacea	0.11mg/l	2
	EC10(ECx)	504h	Crustacea	0.001mg/l	2

4-methacryloxyethyl trimellitic anhydride	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available

oxybenzone	Endpoint	Test Duration (hr)	Species	Value	Source
	BCF	1680h	Fish	33-156	7
	EC50	72h	Algae or other aquatic plants	<=0.042mg/L	4
	EC10(ECx)	72h	Algae or other aquatic plants	0.004mg/L	4
	EC50	48h	Crustacea	1.87mg/l	2
	LC50	96h	Fish	3.196-4.588mg/L	4

Legend:	***Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data***

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
triethylene glycol dimethacrylate	LOW	LOW
2-hydroxyethyl methacrylate	LOW	LOW
2,6-di-tert-butyl-4-methylphenol	HIGH	HIGH
dibenzoyl peroxide	LOW (Half-life = 14 days)	LOW (Half-life = 21.25 days)
oxybenzone	HIGH	HIGH

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
triethylene glycol dimethacrylate	LOW (LogKOW = 1.88)
diurethane dimethacrylate	HIGH (LogKOW = 4.69)
2-hydroxyethyl methacrylate	LOW (BCF = 1.54)
zinc oxide	LOW (BCF = 217)
2,6-di-tert-butyl-4-methylphenol	HIGH (BCF = 2500)
dibenzoyl peroxide	LOW (LogKOW = 3.46)
oxybenzone	LOW (BCF = 160)

12.4. Mobility in soil

Ingredient	Mobility
triethylene glycol dimethacrylate	LOW (Log KOC = 10)
2-hydroxyethyl methacrylate	HIGH (Log KOC = 1.043)
2,6-di-tert-butyl-4-methylphenol	LOW (Log KOC = 23030)
dibenzoyl peroxide	LOW (Log KOC = 771)

Ingredient	Mobility
oxybenzone	LOW (Log KOC = 1268)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

The evidence linking adverse effects to endocrine disruptors is more compelling in the environment than it is in humans. Endocrine disruptors profoundly alter reproductive physiology of ecosystems and ultimately impact entire populations. Some endocrine-disrupting chemicals are slow to break down in the environment. That characteristic makes them potentially hazardous over long periods of time. Some well established adverse effects of endocrine disruptors in various wildlife species include eggshell-thinning, displayed of characteristics of the opposite sex and impaired reproductive development. Other adverse changes in wildlife species that have been suggested, but not proven include reproductive abnormalities, immune dysfunction and skeletal deformaties.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal	Dispose of waste according to applicable legislation. Special country-specific regulations may apply. Can be disposed together with household waste in compliance with official regulations in contact with approved waste disposal companies and with authorities in charge. (Only dispose of completely emptied packages.)
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	
HAZCHEM	2Z

Land transport (ADR-RID)

14.1. **UN number or ID number**	3077
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains zinc oxide)
14.3. **Transport hazard class(es)**	Class: 9 Subsidiary Hazard: Not Applicable
14.4. **Packing group**	III
14.5. **Environmental hazard**	Environmentally hazardous
14.6. **Special precautions for user**	Hazard identification (Kemler): 90 Classification code: M7 Hazard Label: 9 Special provisions: 274 335 375 601

	Limited quantity	5 kg
	Tunnel Restriction Code	Not Applicable

Air transport (ICAO-IATA / DGR)

14.1. **UN number**	3077	
14.2. **UN proper shipping name**	Environmentally hazardous substance, solid, n.o.s. (contains zinc oxide)	
14.3. **Transport hazard class(es)**	ICAO/IATA Class	9
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	9L
14.4. **Packing group**	III	
14.5. **Environmental hazard**	Environmentally hazardous	
14.6. **Special precautions for user**	Special provisions	A97 A158 A179 A197 A215
	Cargo Only Packing Instructions	956
	Cargo Only Maximum Qty / Pack	400 kg
	Passenger and Cargo Packing Instructions	956
	Passenger and Cargo Maximum Qty / Pack	400 kg
	Passenger and Cargo Limited Quantity Packing Instructions	Y956
	Passenger and Cargo Limited Maximum Qty / Pack	30 kg G

Sea transport (IMDG-Code / GGVSee)

14.1. **UN number**	3077	
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains zinc oxide)	
14.3. **Transport hazard class(es)**	IMDG Class	9
	IMDG Subsidiary Hazard	Not Applicable
14.4. **Packing group**	III	
14.5 **Environmental hazard**	Marine Pollutant	
14.6. **Special precautions for user**	EMS Number	F-A , S-F
	Special provisions	274 335 966 967 969
	Limited Quantities	5 kg

Inland waterways transport (ADN)

14.1. **UN number**	3077	
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains zinc oxide)	
14.3. **Transport hazard class(es)**	9	Not Applicable
14.4. **Packing group**	III	
14.5. **Environmental hazard**	Environmentally hazardous	
14.6. **Special precautions for user**	Classification code	M7
	Special provisions	274; 335; 375; 601
	Limited quantity	5 kg
	Equipment required	PP, A***
	Fire cones number	0

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
triethylene glycol dimethacrylate	Not Available
diurethane dimethacrylate	Not Available
bisphenol A dimethacrylate, ethoxylated	Not Available
2-hydroxyethyl methacrylate	Not Available
zinc oxide	Not Available
ytterbium(III) fluoride	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available
10-methacryloyloxydecyl dihydrogen phosphate	Not Available
dibenzoyl peroxide	Not Available
4-methacryloxyethyl trimellitic anhydride	Not Available
oxybenzone	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
triethylene glycol dimethacrylate	Not Available
diurethane dimethacrylate	Not Available
bisphenol A dimethacrylate, ethoxylated	Not Available
2-hydroxyethyl methacrylate	Not Available
zinc oxide	Not Available
ytterbium(III) fluoride	Not Available
2,6-di-tert-butyl-4-methylphenol	Not Available
10-methacryloyloxydecyl dihydrogen phosphate	Not Available
dibenzoyl peroxide	Not Available
4-methacryloxyethyl trimellitic anhydride	Not Available
oxybenzone	Not Available

SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

triethylene glycol dimethacrylate is found on the following regulatory lists

Great Britain GB mandatory classification and labelling (GB MCL) technical reports

diurethane dimethacrylate is found on the following regulatory lists

Great Britain GB mandatory classification and labelling (GB MCL) technical reports

bisphenol A dimethacrylate, ethoxylated is found on the following regulatory lists

Not Applicable

2-hydroxyethyl methacrylate is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

zinc oxide is found on the following regulatory lists

Great Britain GB Biocidal Active Substances
Great Britain GB mandatory classification and labelling list (GB MCL)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

ytterbium(III) fluoride is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
UK Workplace Exposure Limits (WELs).

2,6-di-tert-butyl-4-methylphenol is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK Workplace Exposure Limits (WELs).

10-methacryloyloxydecyl dihydrogen phosphate is found on the following regulatory lists

Not Applicable

dibenzoyl peroxide is found on the following regulatory lists

Great Britain GB mandatory classification and labelling (GB MCL) technical reports
Great Britain GB mandatory classification and labelling list (GB MCL)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK Workplace Exposure Limits (WELs).

4-methacryloxyethyl trimellitic anhydride is found on the following regulatory lists

Not Applicable

oxybenzone is found on the following regulatory lists

Not Applicable

Additional Regulatory Information

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category	E2

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (ytterbium(III) fluoride; 10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
Canada - DSL	No (diurethane dimethacrylate; ytterbium(III) fluoride; 10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
Canada - NDSL	No (triethylene glycol dimethacrylate; bisphenol A dimethacrylate, ethoxylated; 2-hydroxyethyl methacrylate; 10-methacryloyloxydecyl dihydrogen phosphate; dibenzoyl peroxide; 4-methacryloxyethyl trimellitic anhydride; oxybenzone)
China - IECSC	No (10-methacryloyloxydecyl dihydrogen phosphate)
Europe - EINEC / ELINCS / NLP	No (bisphenol A dimethacrylate, ethoxylated; 10-methacryloyloxydecyl dihydrogen phosphate)
Japan - ENCS	No (diurethane dimethacrylate; 10-methacryloyloxydecyl dihydrogen phosphate)
Korea - KECI	No (10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
New Zealand - NZIoC	No (10-methacryloyloxydecyl dihydrogen phosphate)
Philippines - PICCS	No (diurethane dimethacrylate; bisphenol A dimethacrylate, ethoxylated; ytterbium(III) fluoride; 10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
USA - TSCA	TSCA Inventory 'Active' substance(s) (triethylene glycol dimethacrylate; diurethane dimethacrylate; bisphenol A dimethacrylate, ethoxylated; 2-hydroxyethyl methacrylate; zinc oxide; ytterbium(III) fluoride; 2,6-di-tert-butyl-4-methylphenol; dibenzoyl peroxide; oxybenzone); No (10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
Taiwan - TCSI	No (10-methacryloyloxydecyl dihydrogen phosphate)
Mexico - INSQ	No (diurethane dimethacrylate; bisphenol A dimethacrylate, ethoxylated; ytterbium(III) fluoride; 10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
Vietnam - NCI	No (ytterbium(III) fluoride; 4-methacryloxyethyl trimellitic anhydride)
Russia - FBEPH	No (diurethane dimethacrylate; bisphenol A dimethacrylate, ethoxylated; 10-methacryloyloxydecyl dihydrogen phosphate; 4-methacryloxyethyl trimellitic anhydride)
Legend:	***Yes = All CAS declared ingredients are on the inventory*** ***No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.***

SECTION 16 Other information

Revision Date	30/06/2023
Initial Date	11/01/2022

Full text Risk and Hazard codes

H241	Heating may cause a fire or explosion.
H302	Harmful if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

SDS Version Summary

Version	Date of Update	Sections Updated
3.4	30/06/2023	Toxicological information - Acute Health (swallowed), Physical and chemical properties - Appearance, Toxicological information - Chronic Health, Hazards identification - Classification, Composition / information on ingredients - Ingredients

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

- PC—TWA: Permissible Concentration-Time Weighted Average
- PC—STEL: Permissible Concentration-Short Term Exposure Limit
- IARC: International Agency for Research on Cancer
- ACGIH: American Conference of Governmental Industrial Hygienists
- STEL: Short Term Exposure Limit
- TEEL: Temporary Emergency Exposure Limit。
- IDLH: Immediately Dangerous to Life or Health Concentrations
- ES: Exposure Standard
- OSF: Odour Safety Factor
- NOAEL: No Observed Adverse Effect Level
- LOAEL: Lowest Observed Adverse Effect Level
- TLV: Threshold Limit Value
- LOD: Limit Of Detection
- OTV: Odour Threshold Value
- BCF: BioConcentration Factors
- BEI: Biological Exposure Index
- DNEL: Derived No-Effect Level
- PNEC: Predicted no-effect concentration
- MARPOL: International Convention for the Prevention of Pollution from Ships
- IMSBC: International Maritime Solid Bulk Cargoes Code
- IGC: International Gas Carrier Code
- IBC: International Bulk Chemical Code

- AIIC: Australian Inventory of Industrial Chemicals
- DSL: Domestic Substances List
- NDSL: Non-Domestic Substances List
- IECSC: Inventory of Existing Chemical Substance in China
- EINECS: European INventory of Existing Commercial chemical Substances
- ELINCS: European List of Notified Chemical Substances
- NLP: No-Longer Polymers
- ENCS: Existing and New Chemical Substances Inventory
- KECI: Korea Existing Chemicals Inventory
- NZIoC: New Zealand Inventory of Chemicals
- PICCS: Philippine Inventory of Chemicals and Chemical Substances
- TSCA: Toxic Substances Control Act

- TCSI: Taiwan Chemical Substance Inventory
- INSQ: Inventario Nacional de Sustancias Químicas
- NCI: National Chemical Inventory
- FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Skin Corrosion/Irritation Category 2, H315	Calculation method
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 2, H319	Calculation method
Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, H335	Calculation method
Hazardous to the Aquatic Environment Long-Term Hazard Category 2, H411	Calculation method