

# Dental SG

## SAFETY DATA SHEET

Date 03/06/17

GHS/CLP Labelling  
Hazard pictograms:



Signal word: Warning

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

## 1.1 Product identifier

**Product name** : Dental SG  
**Product description** : Monomer based on acrylic esters.

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

**Identified uses** : Base: Monomer based on acrylic esters for manufacturing of 3D-printed denture bases.  
SG: Monomer based on acrylic esters for manufacturing of 3D-printed surgical guides.  
Ortho Rigid: Monomer based on acrylic esters for manufacturing of 3D-printed dental splints. Tray: Monomer based on acrylic esters for manufacturing of 3D-printed individually impression trays. C&B: Monomer based on acrylic esters for manufacturing of 3D-printed crowns and bridges.

**Identified uses** : Mixtures containing unreacted liquid monomer intended to come into contact with skin or nails.

## 1.3 Details of the supplier of the safety data sheet

**Address/Phone no.** : Vertex-Dental B.V.  
PO Box 10  
3700 AA Zeist The Netherlands  
info@vertex-dental.com  
www.vertex-dental.com

**Emergency Phone No.** : +31 88 616 04 40  
(only available during office hours)

# SECTION 2: Hazards identification

## 2.1 Classification of the substance or mixture

According to Regulation (EG) No. 1272/2008 [CLP].

Skin sens. Cat. 1 H317  
Aquatic Chronic Cat. 4 H413  
For full text of H phrases see section 16.

## 2.2 Label elements

**Pictogram** :



**Signal word** : Warning

**Hazard statements** : H317 - May cause an allergic skin reaction.  
H413 - May cause long-lasting harmful effects to aquatic life.

**Precautionary statements** : P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P261 - Avoid breathing dust/fumes/gas/mist/vapours/spray.  
P272 - Contaminated work clothing should not be allowed out of the workplace.

P273 - Avoid release to the environment.  
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.  
P333+P313 - If skin irritation or a rash occurs: Get medical advice/attention.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulation.

### 2.3 Other hazards

Not classified as PBT or vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

This product is a mixture.

### 3.2. Mixtures

Substances in the product which may present a health or environmental hazard, or which have been assigned occupational exposure limits, are detailed below.

According to Regulation (EG) Nr. 1272/2008 [CLP].

Hazardous Ingredients	% w/w	EG No.	Hazard Class and Category Code(s)	Hazard statement Code(s)
Ethoxylated Bisphenol A	> 60	609-946-4	Aquatic Chronic Cat 4	H413
Methacrylic oligomer	15 - 25	Proprietary	Skin sens. Cat 1	H317
Phosphine oxide	< 2,5	423-340-5	Skin sens Aquatic Chronic Cat 1 Cat 4	H317 H413
Phenylphophinate ONLY USED IN TRAY	< 2,5	282-810-6	Aquatic Chronic Cat 3	H412

For full text of H phrases see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### Inhalation

: Move into fresh air and keep at rest. Get medical attention if any discomfort continues.

#### Skin contact

: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if irritation or other symptoms occur after washing.

**Eyes contact** : Continue to rinse for at least 15 minutes under running water with eyelids held open.  
Get medical attention if any discomfort continues.

**Ingestion** : Do not induce vomiting. Immediately rinse mouth and drink plenty of water.  
Get medical attention if any discomfort continues.

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

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further important symptoms and effects are so far not known.

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

##### Notes to physician

**Specific** : Treat according to symptoms (decontamination, vital functions), no known specific antidote.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Water spray, dry powder, CO<sub>2</sub>.

**Unsuitable extinguishing media** : Water jet

### 5.2 Special hazards arising from the substance or mixture

**Hazards during fire-fighting** : Harmful vapours.  
Evolution of fumes/fog.

**Unsuitable Extinguishing Media** : Water jet.

High temperatures may cause spontaneous polymerizing reaction generating heat/pressure. Closed containers may rupture or explode during a runaway polymerization. Use a water spray or fog to reduce temperature of containers.

### 5.3 Advice for firefighters

**Protective equipment** : Wear a self-contained breathing apparatus and full protective clothing.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use protective gloves, goggles and suitable protective clothing. In case of inadequate ventilation, use respiratory protection. Maximize ventilation after accidental release.

### 6.2 Environmental precautions

Contain contaminated water / firefighting water. Do not discharge into drains/surface waters/groundwater. Avoid release to the environment.

### 6.3 Methods and material for containment and cleaning up

Remove sources of ignition. Absorb with sand or other inert absorbent. Spillage may be stored as chemical waste in approved area.

### 6.4 Reference to other sections

See section 8, 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Keep away from heat, sparks and open flame. Use mechanical ventilation in case of handling which causes formation of vapours. Handle and open container with care. Wear full protective clothing for prolonged exposure and/or high concentrations. Take precautionary measures against static discharges.

### 7.2 Conditions for safe storage, including any incompatibilities

Protect from light, including direct sunrays. Container may be filled for only 90%. Keep containers tightly closed, separate from oxidizing agents. Store in original container in a dry, cool and well-ventilated place. Store at temperatures below 30°C. High temperatures may cause spontaneous polymerization.

### 7.3 Specific end use(s)

None.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Substance	EG No.			
Ethoxylated Bisphenol A (100%)	609-946-4			
DNEL (100% component)	Oral	Inhalation	Dermal	
Worker – Long Term – Systemic effects	1	3,52 mg/m <sup>3</sup>	2 mg/kg	

PNEC (100% component)	EG No.
Aquatic Compartment	Not applicable
Terrestrial Compartment	Not applicable

<sup>1</sup>Toxicity: DNEL not established.

Substance	EG No.			
Methacrylic oligomer (100%)	Proprietary			
DNEL (100% component)	Oral	Inhalation	Dermal	
Worker – Long Term – Systemic effects	1	1	1	

PNEC (100% component)	
Aquatic Compartment	Not applicable
Terrestrial Compartment	Not applicable

<sup>1</sup>Toxicity: DNEL not established.

Substance	EG No.		
Phosphine oxide (100%)	423-340-5		
DNEL (100% component)	Oral	Inhalation	Dermal
Worker – Long Term – Systemic effects	1	21 mg/m <sup>3</sup>	3,3 mg/kg

#### PNEC (100% component)

Aquatic Compartment	Not applicable
Terrestrial Compartment	Not applicable

<sup>1</sup>Toxicity: DNEL not established.

Substance	EG No.		
Phenylphophinate (100%)	282-810-6		
DNEL (100% component)	Oral	Inhalation	Dermal
Worker – Long Term – Systemic effects	1	1	1

#### PNEC (100% component)

Aquatic Compartment	No data available
Terrestrial Compartment	No data available

<sup>1</sup>Toxicity: DNEL not established.

## 8.2 Exposure controls

### Appropriate engineering controls

: Do not eat, drink or smoke at the work place. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

### Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

: Wear eye/face protection. Wear approved chemical safety goggles where eyes exposure must be provided.

#### Skin protection

: Wear suitable gloves. Butyl and nitrile rubber gloves offer short-term protection. Gloves should be stored correctly and changed regularly, especially if excessive exposure has occurred.

#### Respiratory protection

: Wear suitable respiratory protective equipment if engineering controls are insufficient, or not present, and exposure to levels above the DNEL is likely. A suitable mask with filter type P2 may be appropriate.

#### Other

: Keep working clothes separately. Take off contaminated clothing immediately. Wash soiled clothing before reuse. Keep away from food, drinks and animal feed. Wash hands thoroughly after handling.

#### Environmental exposure controls

Ensure effective control measures when working within the boundaries as specified in section 6.2 of each GES.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance	: Translucent Orange.
Odour	: Ester like.
pH	: Not applicable.
Melting point	: Not applicable.
Boiling point	: >200 °C.
Flash point	: Not applicable.
Flammability limits (lower) (%v/v)	: Not applicable.
Auto ignition temperature	: 375°C
Explosive properties	: Not applicable.
Oxidizing properties	: Not applicable.
Vapour pressure	: -
Relative density	: 1.1 - 1.2 (water = 1)
Solubility	: Good solubility with most organic solvents.
Water solubility	: Not soluble.
Viscosity	: 1.1 - 1.6 Pa• s

### 9.2 Other information

None.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

: See part 10.2.

### 10.2 Chemical stability

: Stable under normal temperature conditions. Stable if stored and handles as prescribed/indicated.

### 10.3 Possibility of hazardous reactions

: Hazardous polymerization. May polymerize.

### 10.4 Conditions to avoid

: Avoid heat, flames and other sources of ignition. Avoid contact with free radical initiators. Avoid contact with isocyanates and oxidizing agents. Avoid contact with vinyl polymerization initiators. Avoid exposure to high temperatures, direct sunlight or ultra violet (UV) radiation.

### 10.5 Incompatible materials

: Avoid contact with radical forming initiators, peroxides, strong alkalies or reactive metals to prevent exothermic polymerization.

### 10.6 Hazardous decomposition products

: With regard to possible decomposition products refer to Section 5. Oxides of carbon.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Stable Acute toxicity

##### Ethoxylated Bisphenol A (100%)

LD50 acute oral rat	> 2000 mg/kg
LD50 acute dermal rat	> 2000 mg/kg
Skin irritation (rabbit, OECD 404)	Non-irritant.
Eye irritation (rabbit, OECD 405)	Non-irritant.
Skin sensitisation (mouse, OESO 429, LLNA)	No sensitisation.
Aspiration Hazard	No aspiration hazard expected.

##### Methacrylic oligomer (100%)

Skin irritation	Non-irritant.
Eye irritation	Non-irritant.
Skin sensitisation	May cause sensitisation by skin contact.
Aspiration hazard	Not applicable.

##### Phosphine oxide (100%)

LD50 acute oral rat	> 2000 mg/kg
LD50 acute dermal rat	> 2000 mg/kg
Skin irritation (rabbit, 24 h, Draize)	Non-irritant.
Eye irritation (rabbit, Draize)	Non-irritant.
Skin sensitisation guinea pig (GPMT)	Sensitizing.
Aspiration Hazard	Not relevant.
Reproductive toxicity (animal studies)	NOAEL: > 1000 mg/kg/day, Oral, Rat.

##### Phenylphosphinate (100%)

Skin irritation	Non-irritant.
Eye irritation	Non-irritant.
Skin sensitisation	No sensitisation.

## SECTION 12: Ecological information

### 12.1 Toxicity

##### Ethoxylated Bisphenol A (100%)

Toxicity to fish (mg/l)	LL50 (96h) (Oncorhynchus mykiss) (OECD 203)	> 100
Aquatic invertebrates (mg/l)	EL50 (72 h) (Daphnia magna) (OECD 202)	> 100
Aquatic plants (mg/l)	EL50 (72 h) (Pseudokirchneriella subcapitata) (OECD 201)	> 100
	NOEC (72 h) (Selenastrum capricornutum) (OESO 201)	> 100
Micro-organisms (mg/l)	NOEC (28 d) (Activated sludge) (DEV L8)	14,3

##### Methacrylic oligomer (100%)

No data available.

##### Phosphine oxide (100%)

Toxicity to fish (µg/l)	LL50 (96h) (Brachydanio rerio) (OECD 203)	> 90
Aquatic invertebrates (µg/l)	EC50 (48 h) (Daphnia magna) (OECD 202)	> 1175
Aquatic plants (µg/l)	EC50 (72 h) (Desmodesmus subspicatus) (OECD 201)	> 260

Micro-organisms (mg/l)

EC50 (3 h) (Activated sludge) (DEV L8)

> 100

**Phenylphosphinate (100%)**

No data available.

**12.2 Persistence and degradability**

**Ethoxylated Bisphenol A (100%)**

Poorly biodegradable.

24% after 28 d (OESO 301D)

54% after 63 d (OESO 301D)

**Methacrylic oligomer (100%)**

No data available.

**Phosphine oxide (100%)**

Poorly biodegradable. Not readily biodegradable (by OECD criteria).

Elimination information:

1% CO<sub>2</sub> BOD of the ThOD (29 d) (OECD 301 B) (activated sludge).

**Phenylphosphinate (100%)**

No data available.

**12.3 Bioaccumulative potential**

**Ethoxylated Bisphenol A (100%)**

Possible bioaccumulative.

**Methacrylic oligomer (100%)**

No data available.

**Phosphine oxide (100%)**

Does not significantly accumulate in organisms.

Bioaccumulative potential: BCF < 5, Cyprinus carpio (Common carp).

**Phenylphosphinate (100%)**

No data available.

**12.4 Mobility in soil**

**Ethoxylated Bisphenol A (100%)**

Soluble in water. Adsorption: Water - Log K<sub>oc</sub>: 3,88.

**Methacrylic oligomer (100%)**

No data available.

**Phosphine oxide (100%)**

Insoluble in water. Adsorption: Water – Log K<sub>oc</sub>: 3.85 @ 40°C.

**Phenylphosphinate (100%)**

No data available.

**12.5 Results of PBT and vPvB assessment**

**Ethoxylated Bisphenol A (100%)**

PBT: no.

vPvB: no.

**Methacrylic oligomer (100%)**

PBT: no.

vPvB: no.

**Phosphine oxide (100%)**

PBT: no.

vPvB: no.

**Phenylphosphinate (100%)**

PBT: no.

vPvB: no.

**12.6 Other adverse effects****Ethoxylated Bisphenol A (100%)**

Not applicable.

**Methacrylic oligomer (100%)**

Not applicable.

**Phosphine oxide (100%)**

Not applicable.

**Phenylphosphinate (100%)**

Not applicable.

## SECTION 13: Disposal considerations

**13.1 Waste treatment methods**

Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations. Incinerate under approved controlled conditions, using incinerators for the disposal for organic chemicals. Decontaminate empty drums before recycling.

## SECTION 14: Transport information

<b>14.1 UN-Number</b>	: Not classified as a dangerous good under transport regulations.
<b>14.2 UN Proper Shipping Name</b>	: Not applicable.
<b>14.3 Transport hazard class(es)</b>	: Not applicable.
<b>14.4 Packing group</b>	: Not applicable.
<b>14.5 Environmental hazards</b>	: Toxic to aquatic life with long lasting effects.
<b>14.6 Special precautions for user</b>	: -
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	: -

## SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture** : If information other than the information in relation to safety, health and environmental regulations / legislation what is mentioned elsewhere in this Safety Data Sheet is required, please use the information listed in Section 1 to inquire whether that specific information is available. Related information about the separate components in the mixture can be accessed the same way.
- 15.2 Chemical safety assessment** : A Chemical Safety Assessment has been carried out for the following individual components (100%): Ethoxylated Bisphenol A and Phosphine oxide.

## SECTION 16: Other information

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) No. 453/2010.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

### Legend

**Note: Not all of the following are necessarily contained in this Safety Data Sheet:**

<b>S</b>	IOELV	Indicative Occupational Exposure Limit Value.
	WEL	Workplace Exposure Limit.
	Bmgv	Biological Monitoring Guidance Value.
	Sen.	Capable of causing respiratory sensitization.
	Sk	Can be absorbed through skin.
	Carc	Capable of causing cancer and/or heritable genetic damage.
	CHAN	Indicative Occupational Exposure Limit Value.
	COM	Workplace Exposure Limit.
	LTEL	Biological Monitoring Guidance Value.
	STEL	Capable of causing respiratory sensitization.
	TWA	Can be absorbed through skin.
	STOT SE	Capable of causing cancer and/or heritable genetic damage.
	Repr.	Reproductive toxicity.
	Aquatic acute/ chronic	Hazardous to the aquatic environment.

### Full text of H/P phrases

H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long-lasting effects.
H413	May cause long-lasting harmful effects to aquatic life.
P261	Avoid breathing dust/fumes/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
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.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

P362 + P364  
P501

Take off contaminated clothing and wash it before reuse  
Dispose of contents/container in accordance with local/regional/national/international regulation.

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