Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

1.1. Product identifier
- Photo-Cured Resin, SR100-BS
- Photo-Cured Resin, SR100-TR

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

1.3. Details of the supplier of the safety data sheet
- Manufacturer's name: Vertex-DentalB.V.
  - Address: P.O. Box 103700 AA Zeist The Netherlands
  - Emergency telephone number: +31 88 6160 487 (only available during office hours)
- Supplier's name: Roland DG Corporation
  - Address: 1-6-4 Shinmiyakoda, Kita-ku, Hamamatsu-shi, Shizuoka-ken, 431-2103, JAPAN
  - Phone: + 81-53-484-1224
  - Fax: + 81-53-484-1226

Prepared date: 30 August, 2017

2. HAZARDS IDENTIFICATION

Classification of the product
- Skin Sens. 1 - Skin sensitization
- Aquatic Chronic 4 - Hazardous to the aquatic environment – chronic

2.2. GHS label elements, including precautionary statements
- Pictogram

Signal word: Warning
- Hazard statements:
  - H317 May cause an allergic skin reaction
  - H413 May cause long lasting harmful effects to the aquatic life.
Precautionary statements (Prevention):

P280 Wear protective gloves
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

Precautionary statements (Response):

P303+P352 IF ON SKIN (or hair): wash with plenty of soap and water
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses
P333+P313 If skin irritation or a rash occurs: Get medical advice/attention.
P362+P364 Take of contaminated clothing and wash before reuse.

Precautionary statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Monomer based on methacrylic ester with low levels of stabiliser, pigments and accelerator.

<table>
<thead>
<tr>
<th>HAZARDOUS INGREDIENT(S)</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>EU registration No.</th>
<th>% By Weight</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethoxylated Bisphenol A</td>
<td>41637-38-1</td>
<td>609-946-4</td>
<td>N/A for the moment</td>
<td>&gt;60</td>
<td>Aquatic Chronic 4: H413</td>
</tr>
<tr>
<td>Methacrylic oligomer</td>
<td>-</td>
<td>-</td>
<td>N/A for the moment</td>
<td>15 - 25</td>
<td>Skin Sens. 1: H317</td>
</tr>
<tr>
<td>Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide</td>
<td>162881-26-7</td>
<td>423-340-5</td>
<td>N/A for the moment</td>
<td>&lt;2.5</td>
<td>Skin Sens. 1: H317, Aquatic Chronic 4: H413</td>
</tr>
<tr>
<td>Phenylphophinate</td>
<td>84434-11-7</td>
<td>282-810-6</td>
<td>N/A for the moment</td>
<td>&lt;2.5</td>
<td>Aquatic Chronic 3: H412</td>
</tr>
</tbody>
</table>

For full text of H and P phrases see section 2.

4. FIRST AID MEASURES

Inhalation: Remove patient from exposure and to fresh air. Obtain immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash skin immediately with soap and lukewarm water. If symptoms (irritation or blistering) occur obtain medical attention.

Eye Contact: Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

Ingestion: Do not induce vomiting. If ingested, drink plenty of water/milk immediately. If person is vomiting, continue to offer water of milk. Never give anything by mouth to an unconscious person. Obtain medical attention.

Further Medical Treatment
Symptomatic treatment and supportive therapy as indicated.
5. FIRE-FIGHTING MEASURES
May polymerise on heating. Sealed container may rupture explosively if hot.

Suitable extinguishing media: Foam, dry chemicals and CO2.

Unsuitable extinguishing media: Direct jet of water.

Special exposure hazards: 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 or direct vapours. Water may not be efficient in actually extinguishing a fire involving this product.

Fire-Fighting Protective Equipment: A self contained breathing apparatus and full protective clothing should be worn in fire conditions.

6. ACCIDENTAL RELEASE MEASURES
Eliminate sources of ignition. Ensure suitable personal protection (including respiratory protection) during removal or spillage. Prevent entry into drains. Adsorb spillages onto sand, earth or any other suitable adsorbent material. DO NOT adsorb onto sawdust or other combustible materials. Transfer to a container for disposal or recovery. Spillages or uncontrolled discharges into watercourses must be alerted to appropriate regulatory body. Do not discharge into drains/surface waters/groundwater. Maximize ventilation after accidental release.

7. HANDLING AND STORAGE
7.1. HANDLING
Avoid contact with skin and eyes. Avoid inhalation of high concentrations of vapours. Use only in well ventilated areas. Material must be kept from sources of ignition. Take precautionary measures against static discharges. Keep away from food, drinks and animal feed.

7.2. STORAGE
Keep in dry, cool, well ventilated place, separate from oxidising agents. Keep away from sources of ignition – No smoking. Keep away from heat and direct (sun) light. Container may be filled for only 80%. Keep the container closed to avoid evaporation of the product.
Storage temperature: Preferably not exceeding 25°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1. EXPOSURE LIMIT VALUES

<table>
<thead>
<tr>
<th>components</th>
<th>TWA 8 hr (mg/m³)</th>
<th>TWA 8hr (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methacrylic oligomers</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Phosphine oxides</td>
<td>1.0 (Skin)</td>
<td>No vapour</td>
</tr>
<tr>
<td>Colorants and pigments</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>
8.2. EXPOSURE CONTROLS

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

The following information is given as general guidance.

Respirators:

Wear suitable respiratory equipment if exposed to level above the occupational exposure limit is likely. A suitable mask with filter type A may be appropriate.

Eye Protection:

Safety spectacles/goggles

Gloves:

Wear suitable gloves. The most appropriate glove depends on consideration of a number of factors including the physical strength of the glove, the degree of manual dexterity required, the amount of permeation through the glove material and the duration of wear. There are a wide variety of elastomeric and laminate gloves available. Common elastomeric glove material include latex (natural rubber), neoprene (polyisoprene), nitrile rubber (ABS rubber), butyl rubber, polyvinyl alcholo (PVA), polyvinyl chloride (PVC) and fluoroelastomers. Laminate gloves are made from heat sealed sheets of PVA between layers of polyethylene. In permeations tests PVA/Polyethylene laminate and supported PVA gloves performed best (note that PVA can de rendered ineffective by contact with water if the laminate layer is breached). Butyl and nitrile rubber gloves offer short-term protection. Latex surgical gloves offer little protection. Gloves should be stored correctly and changed regularly, especially if excessive exposure has occurred.

Other:

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Opaque viscous liquid

Odor:
Ester like

pH:
Not applicable

Boiling point (deg.C):
> 100deg.C

Flash point (deg.C):
> 93deg.C

Ignition temperature (deg.C):
430°C

Flammability limits (vol-%):
No data available

Relative density:
1.11-1.15 (water = 1)

Explosive properties:
No data available

Oxidizing properties:
No data available

Vapor pressure:
No data available

Solubility:
No data available

Solubility in water (g/l, 20deg.C):
No data available

Partition coefficient: n-octanol/water:
No data available

Viscosity:
No data available

Melting Point:
No data available

Evaporation Rate:
No data available

Vapor Density:
No data available

Volatile organic compounds (VOC) content:
No data available
10. STABILITY AND REACTIVITY
10.1. CONDITIONS TO AVOID
The product is stabilised. However polymerisation may occur when the expiry date and/or storage temperature is considerable exceeded. Keep out of direct sunlight and ultra violet radiation.

10.2. MATERIALS TO AVOID
When heated above the flash point, flammable vapours are emitted which can mix with air and can burn or be explosive. Vapours are heavier than air and may travel to the source of ignition and flash back. Heat can cause polymerisation with rapid release of energy which may rupture the container explosively.

Incompatible materials: strong oxidizers, strong reducers, inert gases and oxygen scavengers.

10.3. HAZARDOUS DECOMPOSITION PRODUCTS
Oxides of carbon when burned.

11. TOXICOLOGICAL INFORMATION
11.1. Information on toxicological effects
Acute toxicity:
Ethoxylated Bisphenol A
LD50 acute oral rat: >2000 mg/kg
LD50 acute dermal rat: >2000 mg/kg

Phenyl bis(2,4,6-trimethylbenzoyl)-phosphine oxide
LD50 acute oral rat: >2000 mg/kg
LD50 acute dermal rat: >2000 mg/kg

Inhalation:
Irritating to respiratory system. High atmospheric concentrations may lead to irritation of the respiratory tract, dizziness, headache and anaesthetic effects.

Skin contact:
May cause sensitation by skin contact. Irritating to skin, Repeated and/or prolonged contact may cause dermatitis.

Eye contact:
High vapour concentration may cause irritation.

Ingestion:
Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

12. ECOLOGICAL INFORMATION
12.1. ENVIRONMENTAL FATE AND DISTRIBUTION
Liquid with low volatility. The product is slightly soluble in water. The product as low potential for bioaccumulation in small amounts.

12.2. ENVIRONMENTAL EXPOSURE CONTROLS
The product should not be allowed to drain in sewers.

13. DISPOSAL CONSIDERATIONS
Disposal should be in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerators for the disposal for organic chemicals. Decontaminate empty drums before recycling.
14. TRANSPORT INFORMATION

No hazardous material as defined by the prescriptions. No specific regulation for transport necessary.

15. REGULATORY INFORMATION

EC Classification: IRRITANT, SENSITIZING AND HARMFUL
Hazard Symbol: Xi: Irritating
Health Phrases: H317: May cause an allergic skin reaction
                H412: Harmful to aquatic life with long-lasting effects.
                H413: May cause long lasting harmful effect to aquatic life

High atmospheric concentrations may lead to irritation of the respiratory tract and anaesthetic effects.
Repeated and/or prolonged contact may cause dermatitis.

16. OTHER INFORMATION

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.