1. Identification of the material and supplier

Names

Product name: Bond-1® SF Solvent-Free SE Adhesive
ADG: Not regulated.
Manufacturer: Pentron Clinical
Unit 10, 112-118 Talavera Road
North Ryde, NSW 2113
Australia
Telephone no.: 1 800 643 603
Email general queries: kerraust.orders@sybrondental.com
Email technical queries: peter.green@sybrondental.com

Emergency telephone number: 61 401 690 670 (24 hours)

Uses

Area of application: Professional applications.
Material uses: Dental product: Self-etch adhesive
Product type: Liquid.

2. Hazards identification

Classification: Xi; R36/37/38
Risk phrases: R36/37/38- Irritating to eyes, respiratory system and skin.
R43- May cause sensitisation by skin contact.

Safety phrases: S24- Avoid contact with skin.
S37- Wear suitable gloves.

Statement of hazardous/dangerous nature: HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

Health effects are based on the uncured material.

3. Composition/information on ingredients

Mixture: Yes.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>glass, oxide, chemicals</td>
<td>65997-17-3</td>
<td>30-60</td>
</tr>
<tr>
<td>7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate</td>
<td>72869-86-4</td>
<td>10-30</td>
</tr>
<tr>
<td>2-Hydroxyethyl methacrylate</td>
<td>868-77-9</td>
<td>&lt;10</td>
</tr>
<tr>
<td>2,2’-ethyleneoxdiethyl dimethacrylate</td>
<td>109-16-0</td>
<td>&lt;10</td>
</tr>
</tbody>
</table>

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
4. First-aid measures

**First-aid measures**

**Inhalation**: No special measures required. If inhaled, remove to fresh air. Get medical attention if symptoms occur.

**Ingestion**: Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Get medical attention if adverse health effects persist or are severe.

**Skin contact**: No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.

**Eye contact**: No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.

**Protection of first-aiders**: In case of major fire and large quantities: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**Advice to doctor**: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

**Extinguishing media**

**Suitable**: Use an extinguishing agent suitable for the surrounding fire.

**Not suitable**: None known.

**Special exposure hazards**: In case of major fire and large quantities: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products**: Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides
- metal oxide/oxides

**Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

**Personal precautions**: Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely.

**Environmental precautions**: Low release. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods for cleaning up**

**Small spill**: Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.

**Large spill**: Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.
7. Handling and storage

**Handling**: No special measures are required for small quantities under normal and intended conditions of product use. For professional use only. Put on appropriate personal protective equipment (see Section 8). Handle with care and dispose of in a safe manner.

**Storage**: Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**Combustible liquid**

Not applicable.

8. Exposure controls/personal protection

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| glass, oxide, chemicals | ACGIH TLV (United States, 6/2013).  
TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction  
TWA: 1 f/cc 8 hours. Form: Respirable fibers: length greater than 5 μM; aspect ratio equal to or greater than 3:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.  
ACGIH TLV (United States).  
TWA: 5 mg/m³ Form: Respirable  
TWA: 10 mg/m³ Form: Total dust |

**Recommended monitoring procedures**: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Exposure controls**

**Engineering measures**: No special measures are required for small quantities under normal and intended conditions of product use.

**Hygiene measures**: No special measures are required for small quantities under normal and intended conditions of product use.

**Eyes**: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Hands**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Respiratory**: No special measures are required for small quantities under normal and intended conditions of product use.

**Skin**: No special measures are required for small quantities under normal and intended conditions of product use.

**Environmental exposure controls**: No special measures are required for small quantities under normal and intended conditions of product use.
9. Physical and chemical properties

- **Physical state**: Liquid. [Gel]
- **Colour**: Slight. Yellow.
- **Odour**: Fruity. Ester.
- **Boiling point**: Not available.
- **Melting point**: Not available.
- **Vapour pressure**: Not available.
- **Density**: 1.5 g/cm³
- **Flash point**: Not available.
- **Flammable limits**: Not available.
- **Vapour density**: Not available.
- **pH**: 3 to 4 [uncured, water / Isopropyl alcohol (50/50)]
- **Viscosity**: Not available.
- **Auto-ignition temperature**: Not available.
- **Solubility**: Partially soluble in the following materials: cold water and hot water.

10. Stability and reactivity

- **Chemical stability**: The product is stable.
- **Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.
- **Conditions to avoid**: Avoid excessive heat. Initiators. Loss of inhibitor or heat may cause polymerization.
- **Materials to avoid**: Reactive or incompatible with the following materials: oxidizing materials and reducing materials. Incompatible with peroxides.
- **Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

**Potential acute health effects**

- **Inhalation**: Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- **Ingestion**: Irritating to mouth, throat and stomach.
- **Skin contact**: Irritating to skin. May cause sensitisation by skin contact.
- **Eye contact**: Irritating to eyes.

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Hydroxyethyl methacrylate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4230 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>2,2’-ethylenedioxydiethyl dimethacrylate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>10837 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**: Based on the criteria of the protocol, this product is considered non-cytotoxic per ISO 10993-5. Based on analysis and test results, this product is considered as biocompatible per EN ISO 7405:2008 and EN ISO 10993-1:2009.

**Potential chronic health effects**

- **Chronic toxicity**
  - **Conclusion/Summary**: Not available.

**Irritation/Corrosion**

**Conclusion/Summary**: Not available.
11. Toxicological information

Skin

Based on the criteria of the protocol, this product is considered a negligible irritant per ISO 10993-10.

Sensitiser

Conclusion/Summary

Skin

Kligman score: Grade I (weak sensitizer)

Carcinogenicity

Conclusion/Summary

No known significant effects or critical hazards.

Mutagenicity

Product/ingredient name | Test | Experiment | Result
--- | --- | --- | ---
Bond-1® SF Solvent-Free SE Adhesive | Bacterial Reverse Mutation Test | Experiment: In vitro Subject: Bacteria | Negative

Conclusion/Summary

No mutagenic effect.

Teratogenicity

Conclusion/Summary

Not available.

Reproductive toxicity

Conclusion/Summary

Not available.

Chronic effects

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity

No known significant effects or critical hazards.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

Developmental effects

No known significant effects or critical hazards.

Fertility effects

No known significant effects or critical hazards.

Over-exposure signs/symptoms

Inhalation

Adverse symptoms may include the following: respiratory tract irritation coughing

Ingestion

No specific data.

Skin

Adverse symptoms may include the following: irritation redness

Eyes

Adverse symptoms may include the following: irritation watering redness

Target organs

Contains material which may cause damage to the following organs: upper respiratory tract, skin, eye, lens or cornea.

12. Ecological information

Ecotoxicity

No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name | Result | Species | Exposure
--- | --- | --- | ---
2-Hydroxyethyl methacrylate | Acute LC50 227000 μg/l Fresh water | Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) | 96 hours

Conclusion/Summary

Not available.
12. Ecological information

**Other ecological information**

**Persistence/degradability**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Hydroxyethyl methacrylate</td>
<td>301C Ready Biodegradability - Modified MITI Test (I)</td>
<td>92 to 100 % - 14 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**: Not available.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Hydroxyethyl methacrylate</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,7,9(or 7,9,9)-trimethyl-4, 13-dioxo-3,14-dioxo-5, 12-diazahexadecane-1, 16-diyl bismethacrylate</td>
<td>3</td>
<td>-</td>
<td>high</td>
</tr>
<tr>
<td>2-Hydroxyethyl methacrylate</td>
<td>0.42</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>2,2'-ethylenedioxydiethyl dimethacrylate</td>
<td>1.88</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Other adverse effects**: No known significant effects or critical hazards.

13. Disposal considerations

**Methods of disposal**: The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

14. Transport information

**International transport regulations**

| ADG/ADR/IMDG/IATA | Not regulated. |

15. Regulatory information

**Standard Uniform Schedule of Medicine and Poisons**

Not regulated.

**Control of Scheduled Carcinogenic Substances**

No listed substance.

**Australia inventory (AICS)**: Not determined.

**EU Classification**: Xi; R36/37/38 R43

16. Other information

**Person who prepared the MSDS**: IHS

**Date of previous issue**: No previous validation.

**Date of issue/ Date of revision**: 01/05/2015.

**Version**: 1
16. Other information

Indicates information that has changed from previously issued version.

Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.