

### 1 . Identification of the material and supplier

#### Names

**Product name** : Herculite XRV  
**ADG** : Not regulated.  
**Manufacturer** : **Kerr Australia Pty Limited**  
 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: Composite  
**Product type** : Paste.

### 2 . Hazards identification

**Classification** : Xn; R22  
 Xi; R36/37/38  
 R52/53  
**Risk phrases** : R22- Harmful if swallowed.  
 R36/37/38- Irritating to eyes, respiratory system and skin.  
 R52/53- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
**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.

| Ingredient name  | CAS number  | Concentration |
|--|-------------|---------------|
| glass, oxide, chemicals  | 65997-17-3  | > 60          |
| 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate   | 72869-86-4  | <10           |
| Poly(oxy-1,2-ethanediyl), $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene] bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]-1,6-hexanediyl bismethacrylate | 41637-38-1  | <10           |
| 2,2'-ethylenedioxydiethyl dimethacrylate   | 6606-59-3   | <10           |
| Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica   | 109-16-0    | <10           |
| Silica, amorphous, fumed, cryst.-free  | 68909-20-6  | <10           |
| Hexamethylene diacrylate   | 112945-52-5 | <10           |
|  | 13048-33-4  | <10           |

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

- |                                   |  |
|-----------------------------------|--|
| <b>Inhalation</b>                 | : No special measures required. If inhaled, remove to fresh air. Get medical attention if symptoms occur.  |
| <b>Ingestion</b>                  | : 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. |
| <b>Skin contact</b>               | : No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.  |
| <b>Eye contact</b>                | : No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.   |
| <b>Protection of first-aiders</b> | : 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.   |
| <b>Advice to doctor</b>           | : 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

- |   |   |
|---|---|
| <b>Suitable</b>                                       | : Use an extinguishing agent suitable for the surrounding fire.   |
| <b>Not suitable</b>                                   | : None known.   |
| <b>Special exposure hazards</b>                       | : 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. This material is harmful to aquatic organisms. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.<br><br>In a fire or if heated, a pressure increase will occur and the container may burst. |
| <b>Hazardous thermal decomposition products</b>       | : Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>nitrogen oxides<br>metal oxide/oxides   |
| <b>Special protective equipment for fire-fighters</b> | : 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

- |                                       |  |
|---------------------------------------|--|
| <b>Personal precautions</b>           | : Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely  |
| <b>Environmental precautions</b>      | : 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). Water polluting material. |
| <b><u>Methods for cleaning up</u></b> |  |
| <b>Small spill</b>                    | : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.   |
| <b>Large spill</b>                    | : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.   |

## 7 . Handling and storage

|                           |   |
|---------------------------|---|
| <b>Handling</b>           | : 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.   |
| <b>Storage</b>            | : 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. |
| <b>Combustible liquid</b> | Not applicable.   |

## 8 . Exposure controls/personal protection

### Occupational exposure limits

| Ingredient name  | Exposure limits  |
|--|--|
| glass, oxide, chemicals  | <p><b>ACGIH TLV (United States, 6/2013).</b><br/> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Inhalable fraction<br/> TWA: 1 f/cc 8 hours. Form: Respirable fibers: length greater than 5 uM; 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.</p> <p><b>ACGIH TLV (United States).</b><br/> TWA: 5 mg/m<sup>3</sup> Form: Respirable<br/> TWA: 10 mg/m<sup>3</sup> Form: Total dust</p> |
| Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica | <p><b>ACGIH TLV (United States).</b><br/> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Inhalable<br/> TWA: 3 mg/m<sup>3</sup> 8 hours. Form: Respirable</p>   |
| Silica, amorphous, fumed, cryst.-free  | <p><b>Safe Work Australia (Australia, 7/2012).</b><br/> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Inhalable fraction</p>   |

|  |  |
|--|--|
| <b>Recommended monitoring procedures</b> | : 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.

## 8 . Exposure controls/personal protection

- 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. [Paste.]
- Colour** : Various
- Odour** : Fruity ester-like
- Boiling point** : Not available.
- Melting point** : Not available.
- Vapour pressure** : Not available.
- Relative density** : 2.5 [Water = 1]
- Flash point** : Not available.
- Flammable limits** : Not available.
- Vapour density** : Not available.
- pH** : Not available.
- Viscosity** : Not available.
- Auto-ignition temperature** : Not available.
- Solubility** : Insoluble 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** : Keep away from heat. Light. Heat can cause polymerization with rapid release of energy.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.  
Peroxide.  
Amine.
- 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** : Harmful if swallowed. Irritating to mouth, throat and stomach.
- Skin contact** : Irritating to skin.
- Eye contact** : Irritating to eyes.
- Acute toxicity**

**11 . Toxicological information**

| Product/ingredient name                  | Result      | Species | Dose        | Exposure |
|--|-------------|---------|-------------|----------|
| 2,2'-ethylenedioxydiethyl dimethacrylate | LD50 Oral   | Rat     | 10837 mg/kg | -        |
| Silica, amorphous, fumed, cryst.-free    | LD50 Oral   | Rat     | 3160 mg/kg  | -        |
| Hexamethylene diacrylate                 | LD50 Oral   | Rat     | 5 g/kg      | -        |
| Herculite XRV                            | LD50 Dermal | Rabbit  | >2000 mg/kg | -        |
|  | LD50 Oral   | Rat     | >1000 mg/kg | -        |

**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**

| Product/ingredient name  | Result                 | Species | Score | Exposure                | Observation |
|--------------------------|------------------------|---------|-------|-------------------------|-------------|
| Hexamethylene diacrylate | Skin - Severe irritant | Rabbit  | -     | 24 hours 500 milligrams | -           |

**Conclusion/Summary** : Not available.

**Sensitiser**

| Product/ingredient name | Route of exposure | Species    | Result          |
|-------------------------|-------------------|------------|-----------------|
| Herculite XRV           | skin              | Guinea pig | Not sensitizing |

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Mutagenicity**

**Conclusion/Summary** : Not mutagenic in Ames test.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Chronic effects** : No known significant effects or critical hazards.

**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

## 11 . Toxicological information

- 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** : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### Aquatic ecotoxicity

- Conclusion/Summary** : Not available.

### Other ecological information

#### Persistence/degradability

- Conclusion/Summary** : Not available.

#### Bioaccumulative potential

| Product/ingredient name   | LogP <sub>ow</sub> | BCF  | Potential |
|---|--------------------|------|-----------|
| 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate  | 3                  | -    | high      |
| Poly(oxy-1,2-ethanediyl), α,α'-[(1-methylethylidene)di-4,1-phenylene]bis[ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]-2,2'-ethylenedioxydiethyl dimethacrylate | 3.43 to 5.62       | 2372 | high      |
| Hexamethylene diacrylate  | 1.88               | -    | low       |
|   | 2.81               | -    | low       |

- 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

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### Control of Scheduled Carcinogenic Substances

No listed substance

- Australia inventory (AICS)** : All components are listed or exempted.

- EU Classification** : Xn; R22  
Xi; R36/37/38  
R52/53

## 16 . Other information

Person who prepared the MSDS : IHS  
Date of previous issue : No previous validation.  
Date of issue/ Date of revision : 2/26/2015.  
Version : 1

 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.