Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
DENTSPLY CALIBRA ESTHETIC RESIN CEMENT - BASE PASTE

PROPER SHIPPING NAME
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(contains bisphenol A glycidylmethacrylate, triethylene glycol dimethacrylate and 2,2-bis[4-(2-methacryloxy)ethoxy]phenyl]propane)

PRODUCT USE
Dual curing dental crown and bridge cement.

SUPPLIER
Company: DENTSPLY (AUSTRALIA) PTY LTD
Address:
11 - 21 Gilby Road
Mount Waverley
VIC 3149
AUSTRALIA
Telephone: 1300 55 29 29
Emergency Tel: 1300 55 29 29 (Hours of operation: Monday - Friday 9:00 am - 5:00 pm EST; General information only)
Fax: +61 3 9538 8260

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

RISK

■ Irritating to eyes, respiratory system and skin.
■ May cause SENSITISATION by skin contact.
■ Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY

■ Avoid contact with skin.
■ Wear eye/face protection.
■ Use only in well ventilated areas.
■ Keep container in a well ventilated place.
■ To clean the floor and all objects contaminated by this material, use water and detergent.
■ This material and its container must be disposed of in a safe way.
■ In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
■ If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).
■ Use appropriate container to avoid environmental contamination.
■ Avoid release to the environment. Refer to special instructions/Safety data sheets.
■ This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>frits chemical</td>
<td>65997-18-4</td>
<td>&lt;70</td>
</tr>
<tr>
<td>bisphenol A glycidylmethacrylate</td>
<td>1565-94-2</td>
<td>&lt;20</td>
</tr>
<tr>
<td>triethylene glycol dimethacrylate</td>
<td>109-16-0</td>
<td>&lt;15</td>
</tr>
<tr>
<td>2, 2- bis[4- (2- methacryloxy)ethoxy]phenyl]propane</td>
<td>24448-20-2</td>
<td>&lt;15</td>
</tr>
<tr>
<td>silica, dimethylsiloxy treated</td>
<td>67762-90-7</td>
<td>&lt;5</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>13463-67-7</td>
<td>notspec</td>
</tr>
<tr>
<td>iron oxides</td>
<td>notspec</td>
<td></td>
</tr>
</tbody>
</table>
Section 4 - FIRST AID MEASURES

SWALLOWED
• Immediately give a glass of water.
• First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE
■ 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
■ 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.

INHALED
• If fumes or combustion products are inhaled remove from contaminated area.
• Lay patient down. Keep warm and rested.
• Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
• Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained.
• Perform CPR if necessary.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• Water spray or fog.
• Foam.
• Dry chemical powder.
• BCF (where regulations permit).

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.

FIRE/EXPLOSION HAZARD
• Non combustible.
• Not considered a significant fire risk, however containers may burn.
• Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), hydrogen fluoride, sulfur oxides (SOx), silicon dioxide (SiO2), metal oxides, other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY
• Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

HAZCHEM
• 3Z

Personal Protective Equipment
Breathing apparatus.
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

Section 6 - ACCIDENTAL RELEASE MEASURES

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.

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.

continued...
Section 6 - ACCIDENTAL RELEASE MEASURES

• Prevent, by any means available, spillage from entering drains or water course.

Environmental hazard - contain spillage.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
• Most acrylic monomers have low viscosity therefore pouring, material transfer and processing of these materials do not necessitate heating.
• Viscous monomers may require heating to facilitate handling. To facilitate product transfer from original containers, product must be heated to no more than 60 deg. C. (140 F.), for not more than 24 hours.
• Do NOT use localised heat sources such as band heaters to heat/ melt product.
• Do NOT use steam.
• 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.

SUITABLE CONTAINER
• Polyethylene or polypropylene container.
• Packing as recommended by manufacturer.
• Check all containers are clearly labelled and free from leaks.

STORAGE INCOMPATIBILITY
• Avoid reaction with oxidising agents.
For frits:
• Avoid storage with hydrogen fluoride/ hydrofluoric acid, oxygen difluoride, manganese trifluoride, fluorine and other fluorine containing compounds, manganese trioxide, chlorates, chlorine trifluoride, chlorine trioxide, strong alkalis, metal oxides, concentrated orthophosphoric acid or vinyl acetate.
• 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).

STORAGE REQUIREMENTS
• Store in original containers.
• Keep containers securely sealed.
• Store in a cool, dry, well-ventilated area.
• Store away from incompatible materials and foodstuff containers.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA mg/m³</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure Standards</td>
<td>titanium dioxide (Titanium dioxide (a))</td>
<td>10</td>
<td>(see Chapter 14)</td>
</tr>
</tbody>
</table>

The following materials had no OELs on our records
• frits chemical: CAS:65997- 18- 4
• bisphenol A glycidylmethacrylate: CAS:1565- 94- 2
• triethylene glycol dimethacrylate: CAS:109- 16- 0
• 2, 2- bis[4- (2- methacryloxy)ethoxy]phenyl]propane: CAS:24448- 20- 2
• silica, dimethylsiloxane treated: CAS:67762- 90- 7

PERSONAL PROTECTION

RESPIRATOR
Type A-P Filter of sufficient capacity

EYE
• Safety glasses with side shields.
• Chemical goggles.
• 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 lenses 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].

HANDS/FEET
• NOTE:
  • The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to...
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

General warning: Do NOT use latex gloves! Use only recommended gloves - using the wrong gloves may increase the risk:

**Exposure condition Short time use; (few minutes less than 0.5 hour) Little physical stress**
Use of thin nitrile rubber gloves; Nitrile rubber (0.1 mm) Excellent tactility ("feel"), powder-free Disposable Inexpensive Give adequate protection to low molecular weigh acrylic monomers

**Exposure condition Medium time use; less than 4 hours Physical stress (opening drums, using tools, etc.)**
Use of medium thick nitrile rubber gloves Nitrile rubber, NRL (latex) free; <0.45 mm Moderate tactility ("feel"), powder-free Disposable Moderate price Gives adequate protection for most acrylates up to 4 hours Do NOT give adequate protection to low molecular weight monomers at exposures longer than 1 hour

**Exposure condition Long time Cleaning operations**
Nitrile rubber, NRL (latex) free; >0.56 mm Low tactility ("feel"), powder free High price Gives adequate protection for most acrylates in combination with commonly used solvents up to 8 hours Do NOT give adequate protection to low molecular weight monomers at exposures longer than 1 hour Avoid use of ketones and acetates in wash-up solutions.

**OTHER**
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

**ENGINEERING CONTROLS**
- Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE**
Multiple shades, creamy viscous pastes with a characteristic sweet acrylic ester odour; does not mix with water.

**PHYSICAL PROPERTIES**
Does not mix with water.
Sinks in water.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Non Slump Paste</td>
</tr>
<tr>
<td>Melting Range (°C)</td>
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</tr>
<tr>
<td>Boiling Range (°C)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Decomposition Temp (°C)</td>
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</tr>
<tr>
<td>Autoignition Temp (°C)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
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</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
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</tr>
<tr>
<td>Molecular Weight</td>
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<tr>
<td>Viscosity</td>
<td>Not Available</td>
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<tr>
<td>Solubility in water (g/L)</td>
<td>Immiscible</td>
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<tr>
<td>pH (1% solution)</td>
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<tr>
<td>pH (as supplied)</td>
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</tr>
<tr>
<td>Vapour Pressure (kPa)</td>
<td>Not Applicable</td>
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<tr>
<td>Specific Gravity (water=1)</td>
<td>1.8</td>
</tr>
<tr>
<td>Relative Vapour Density (air=1)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

**CONDITIONS CONTRIBUTING TO INSTABILITY**
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

**POTENTIAL HEALTH EFFECTS**

**ACUTE HEALTH EFFECTS**
- Irritating to eyes, respiratory system and skin.

**CHRONIC HEALTH EFFECTS**
- May cause SENSITISATION by skin contact.

continued...
TOXICITY AND IRRITATION

- 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.
- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

No significant acute toxicological data identified in literature search.

UV (ultraviolet)/ EB (electron beam) acrylates are generally of low toxicity

UV/EB acrylates are divided into two groups; "stenomeric" and "eurymeric" acrylates.

The first group consists of well-defined acrylates which can be described by a simple idealised chemical; they are low molecular weight species with a very narrow weight distribution profile.

The eurymeric acrylates cannot be described by an idealised structure and may differ fundamentally between various suppliers; they are of relatively high molecular weight and possess a wide weight distribution.

Stenomeric acrylates are usually more hazardous than the eurymeric substances.

Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence. For example

- Monomethyl or monoarylesters of acrylic acids should be classified as R36/37/38 and R51/53
- Monoalkyl or monovalent esters of methacrylic acid should be classified as R36/37/38.

TRIETHYLENE GLYCOL DIMETHACRYLATE:

- Where no "official" classification for acrylates and methacrylates exists, there has been cautious attempts to create classifications in the absence of contrary evidence.
- For example

MONOKLYL or MONOARYLESTERS OF ACRYLIC ACIDS SHOULD BE CLASSIFIED AS R36/37/38 AND R51/53.

TRIETHYLENE GLYCOL DIMETHACRYLATE:

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

MONOKLYL or MONOARYLESTERS OF ACYRIC ACIDS SHOULD BE CLASSIFIED AS R36/37/38 AND R51/53.

SIBIALICA, DIMETHYLSILOXANE TREATED:

TOXICITY

Oral (rat) LD50: 10837 mg/kg
Oral (mouse) LD50: 10750 mg/kg

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.

SENSITISER

- Triethylene glycol dimethacrylate Australia Final Report on Hazard Classification of Common Skin Sensitisers
- Recommended for Hazard Classification (R43)
Section 12 - ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. 
This material and its container must be disposed of as hazardous waste. 
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>triethylene glycol</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
<td>HIGH</td>
</tr>
<tr>
<td>dimethacrylate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>HIGH</td>
<td>LOW</td>
<td>HIGH</td>
<td></td>
</tr>
</tbody>
</table>

Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

- Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in:
  (a) packagings;
  (b) IBCs; or
  (c) any other receptacle not exceeding 500 kg(L).
- Australian Special Provisions (SP AU01) - ADG Code 7th Ed.
- Labels Required: MISCELLANEOUS

HAZCHEM:
- 3Z (ADG7)

ADG7:
- Class or division: 9
- UN No.: 3082
- Special provisions: 274; 331; 335
- Limited quantities: 5 L
- Portable tanks and bulk containers - Special provisions:
  - Packagings and IBCs - Special packing provisions:
    - Packagings and IBCs - PP1
- Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains bisphenol A glycidylmethacrylate, triethylene glycol dimethacrylate and 2,2-bis[4-(2-methacryloxy)ethoxy]phenyl)propane)

Land Transport UNDG:
- Class or division: 9
- UN No.: 3082
- Subsidiary risk: None
- UN packing group: III
- Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains bisphenol A glycidylmethacrylate, triethylene glycol dimethacrylate and 2,2-bis[4-(2-methacryloxy)ethoxy]phenyl)propane)

Air Transport IATA:
- ICAO/IATA Class: 9
- ICAO/IATA Subrisk: None
- UN/ID Number: 3082
- Packing Group: III
- Special provisions: A97
- Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains bisphenol A glycidylmethacrylate, triethylene glycol dimethacrylate and 2,2-bis[4-(2-methacryloxy)ethoxy]phenyl)propane)
Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE None

REGULATIONS

Regulations for ingredients

frits chemical (CAS: 65997-18-4) is found on the following regulatory lists;
"Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "OECD Representative List of High Production Volume (HPV) Chemicals"

bisphenol A glycidylmethacrylate (CAS: 1565-94-2) is found on the following regulatory lists;
"Australia Inventory of Chemical Substances (AICS)"

triethylene glycol dimethacrylate (CAS: 109-16-0) is found on the following regulatory lists;
"Australia Final Report on Hazard Classification of Common Skin Sensitisers", "Australia Inventory of Chemical Substances (AICS)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals"

2,2-bis[4-(2-methacryloxy)ethoxy]phenyl]propane (CAS: 24448-20-2) is found on the following regulatory lists;
"Australia Inventory of Chemical Substances (AICS)"

silica, dimethylsiloxane treated (CAS: 67762-90-7) is found on the following regulatory lists;
"Australia Inventory of Chemical Substances (AICS)", "OECD Representative List of High Production Volume (HPV) Chemicals"


No data for Dentsply Calibra Esthetic Resin Cement - Base Paste (CW: 4993-52)

Section 16 - OTHER INFORMATION

ND

Substance | CAS | Suggested codes
--- | --- | ---
bisphenol A glycidylmethacrylate | 1565-94-2 |
triethylene glycol dimethacrylate | 109-16-0 |
2,2-bis[4-(2- methacryloxy)ethoxy]phenyl]propane | 24448-20-2 |

INGREDIENTS WITH MULTIPLE CAS NUMBERS

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS</th>
</tr>
</thead>
</table>

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. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.

The (M)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.

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This is the end of the MSDS.