1 Identification of the substance/mixture and of the company/undertaking

Product identifier

- **Trade name:** iBOND Total Etch

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

- **Application of the substance / the mixture:** Dental bonding material

Details of the supplier of the safety data sheet

- **Manufacturer/Supplier:** Heraeus Kulzer Australia Pty Ltd
  Unit 32
  11 – 21 Underwood Rd
  HOMEBUSHE NSW 2140
  Australia
  Tel: +61 (0) 2 9764 5222

- **Informing department:** see above

- **Emergency telephone number:** Emergency contact number: 13 11 26 (24 hours)

2 Hazards identification

Classification of the substance or mixture

- Flam. Liq. 3 H226 Flammable liquid and vapour.
- Skin Irrit. 2 H315 Causes skin irritation.
- Eye Dam. 1 H318 Causes serious eye damage.
- Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin Sens. 1 H317 May cause an allergic skin reaction.

Label elements

- **GHS label elements**
  The product is classified and labelled according to the Globally Harmonised System (GHS).
  - **Hazard pictograms**

  ![GHS02](image)
  ![GHS05](image)
  ![GHS08](image)

- **Signal word** Danger

Hazard-determining components of labelling:

- 2-hydroxyethyl methacrylate
- glutaral
- 4-methacryloxyethyltrimellitic acid anhydride

Hazard statements

- Flammable liquid and vapour.
- Causes skin irritation.
- Causes serious eye damage.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.

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Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Wear respiratory protection.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.

Other hazards -
Results of PBT and vPvB assessment
• PBT: Not applicable.
• vPvB: Not applicable.

Composition/information on ingredients

- Chemical characterisation: Mixtures
- Description: -

- Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS</th>
<th>Description</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>200-578-6</td>
<td>ethanol</td>
<td>25-50%</td>
</tr>
<tr>
<td>868-77-9</td>
<td>212-782-2</td>
<td>2-hydroxyethyl methacrylate (Flm. Liq. 2, H225)</td>
<td>10-25%</td>
</tr>
<tr>
<td>70293-55-9</td>
<td></td>
<td>Poly(methacrylic-oligo-acrylic acid) Eye Irrit. 2, H319</td>
<td>0-5%</td>
</tr>
<tr>
<td>111-30-8</td>
<td>203-856-5</td>
<td>glutaral</td>
<td>0-5%</td>
</tr>
<tr>
<td>112926-00-8</td>
<td>231-545-4</td>
<td>amorphous silica</td>
<td>0-5%</td>
</tr>
</tbody>
</table>

Additional information For the wording of the listed hazard phrases refer to section 16.

First aid measures

- Description of first aid measures
  • After inhalation Supply fresh air; consult doctor in case of symptoms.
  • After skin contact Instantly wash with water and soap and rinse thoroughly.
  • After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
  • After swallowing Rinse out mouth and then drink plenty of water. Instantly call for doctor.
    In case of persistent symptoms consult doctor.
  • Information for doctor
    • Most important symptoms and effects, both acute and delayed
      No further relevant information available.
5 Firefighting measures

- **Extinguishing media**
  - Suitable extinguishing agents
    - CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
  - For safety reasons unsuitable extinguishing agents
    - Water with a full water jet.

- Special hazards arising from the substance or mixture
  - Can form explosive gas-air mixtures.
  - Formation of toxic gases is possible during heating or in case of fire.

- Advice for firefighters
  - Protective equipment: Put on breathing apparatus.

- Additional information -

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Wear protective equipment. Keep unprotected persons away.

- **Environmental precautions:**
  - Do not allow to enter the ground/soil.
  - No special measures required.

- **Methods and material for containment and cleaning up:**
  - Absorb with liquid-binding material (diatomite, universal binders, for small amounts tissues).
  - Send for recovery or disposal in suitable containers.

- **Reference to other sections**
  - See Section 13 for information on disposal.
  - See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**
  - Precautions for safe handling
    - Keep containers tightly sealed.
    - Ensure good ventilation/exhaustion at the workplace.
    - Prevent formation of aerosols.
  - Information about protection against explosions and fires:
    - Keep ignition sources away - Do not smoke.
    - Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
  - Storage
    - Requirements to be met by storerooms and containers: No special requirements.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions: Store cool (not above 25 °C).
8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with critical values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>1880 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>111-30-8 glutaral</td>
<td>0.41 mg/m³, 0.1 ppm</td>
</tr>
<tr>
<td>112926-00-8 amorphous silica</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

DNELs

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral ge.pop., l.te., syst.</td>
<td>87 mg/Kg (nd)</td>
</tr>
<tr>
<td>Dermal worker profess., l.te., syst.</td>
<td>343 mg/Kg/d (nd)</td>
</tr>
<tr>
<td>Dermal ge.pop., acu., local</td>
<td>950 mg/Kg/d (nd)</td>
</tr>
<tr>
<td>Dermal ge.pop., l.te., syst.</td>
<td>206 mg/Kg/d (nd)</td>
</tr>
<tr>
<td>Inhalative worker profess., acute, local</td>
<td>1900 mg/m³ (nd)</td>
</tr>
<tr>
<td>Inhalative worker profess., l.te., syst.</td>
<td>1900 mg/m³ (nd)</td>
</tr>
<tr>
<td>Inhalative ge.pop., acu., local</td>
<td>950 mg/m³ (nd)</td>
</tr>
<tr>
<td>Inhalative ge.pop., l.te., syst.</td>
<td>114 mg/m³ (nd)</td>
</tr>
</tbody>
</table>

PNECs

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>freshwater ge.pop., l.te., syst.</td>
<td>0.96 mg/l (nd)</td>
</tr>
<tr>
<td>marine water ge.pop., l.te., syst.</td>
<td>0.79 mg/l (nd)</td>
</tr>
<tr>
<td>STP</td>
<td>580 mg/l (nd)</td>
</tr>
<tr>
<td>sedim., dw, fre.wat.</td>
<td>3.6 mg/Kg (nd)</td>
</tr>
<tr>
<td>soil,dw</td>
<td>0.63 mg/Kg (nd)</td>
</tr>
</tbody>
</table>
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- **Additional information:** The lists that were valid during the compilation were used as basis.

- **Exposure controls**

  - **Personal protective equipment**
    - **General protective and hygienic measures**
      - Keep away from foodstuffs, beverages and food.
      - Instantly remove any soiled and impregnated garments.
      - Wash hands during breaks and at the end of the work.
      - Do not inhale gases / fumes / aerosols.
      - Avoid contact with the eyes and skin.
    - **Breathing equipment:** Breathing protection recommended.
    - **Protection of hands:**
      - If skin contact cannot be avoided, protective gloves are recommended to avoid possible sensitization.
      - Solvent resistant gloves
      - Check protective gloves prior to each use for their proper condition. Recommended
    - **Material of gloves**
      - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
    - **Penetration time of glove material**
      - The exact breakthrough time has to be found out by the manufacturer of the protective gloves and has to be observed.
    - **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
      - Butyl rubber, BR
      - Nitrile rubber, NBR
    - **Eye protection:** not absolutely necessary
    - **Body protection:** Light weight protective clothing

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - Form: Fluid
      - Colour: Yellowish
      - Smell: Characteristic
    - **Odour threshold:** Not determined.
  - **pH-value:** Not determined.

- **Change in condition**
  - **Melting point/Melting range:** Not determined
  - **Boiling point/Boiling range:** Not determined

- **Flash point:** 24 °C

- **Inflammability (solid, gaseous)** Not applicable.
Trade name: iBOND Total Etch

- Ignition temperature: 425 °C
- Decomposition temperature: Not determined.
- Self-inflammability: Product is not selfigniting.
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapour mixtures is possible.
- Critical values for explosion:
  - Lower: 3.5 Vol %
  - Upper: 15.0 Vol %
- Steam pressure at 20 °C: 57 hPa
- Density: Not determined
  - Relative density: Not determined.
  - Vapour density: Not determined.
  - Evaporation rate: Not determined.
- Solubility in / Miscibility with: Water: Not miscible or difficult to mix
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity:
  - dynamic: Not determined.
  - kinematic: Not determined.
- Other information: No further relevant information available.

10 Stability and reactivity
- Reactivity: No further relevant information available.
- Chemical stability
  - Conditions to be avoided: No decomposition if used and stored according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: None
- Additional information: -

11 Toxicological information
- Information on toxicological effects
  - Acute toxicity
    - LD/LC50 values that are relevant for classification:
      64-17-5 ethanol
      - Oral LD50: 6200 mg/kg (rat)
      - Inhalative LC50/4 h: 95.6 mg/l (rat)
### Trade name: iBOND Total Etch

#### Chemicals and physical data

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS Number</th>
<th>Description</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>41137-60-4 diurethandimethacrylate</td>
<td></td>
<td></td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>868-77-9 2-hydroxyethyl methacrylate</td>
<td></td>
<td>Oral</td>
<td>5564 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal</td>
<td>3000 mg/kg (can)</td>
<td></td>
</tr>
<tr>
<td>Poly(methacrylic-oligo-acrylic acid)</td>
<td></td>
<td>Oral</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>70293-55-9 4-methacryloxyethyltrimellitic acid anhydride</td>
<td></td>
<td>Oral</td>
<td>&gt;2000 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal</td>
<td>&gt;2000 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>72869-86-4 diurethandimethacrylate</td>
<td></td>
<td>Oral</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - Skin corrosion/irritation: Irritant for skin and mucous membranes.
  - Serious eye damage/irritation: Strong irritant with the danger of severe eye injury.
- **Respiratory or skin sensitisation**
  - Sensitization possible by inhalation.
  - Sensitization possible by skin contact.

**Additional toxicological information:**
- Harmful

### 12 Ecological information

#### Toxicity

- **Aquatic toxicity:**
  - 868-77-9 2-hydroxyethyl methacrylate
    - LC50/96h: 227 mg/l (fish)
  - 72869-86-4 diurethandimethacrylate
    - LC50/96h: 10.1 mg/l (fish)

- **Persistence and degradability:** No further relevant information available.
- **Behaviour in environmental systems:**
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
- **Additional ecological information:**
  - General notes: Avoid transfer into the environment.
- **Results of PBT and vPvB assessment**
  - PBT: Not applicable.
  - vPvB: Not applicable.
- **Other adverse effects:** No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation
  Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - ADG, IMDG, IATA
  UN1170

- UN proper shipping name
  - ADG
  1170 ETHANOL (ETHYL ALCOHOL)
  - IMDG
  ETHANOL (ETHYL ALCOHOL)
  - IATA
  Ethanol

- Transport hazard class(es)
  - ADG
    - Class
      3 (F1) Flammable liquids.
    - Label
      3

  - IMDG, IATA
    - Class
      3 Flammable liquids.
    - Label
      3

- Packing group
  - ADG, IMDG, IATA
  III

- Environmental hazards:
  - Marine pollutant:
    No

- Special precautions for user
  - Kemler Number:
    Warning: Flammable liquids.
    30
  - EMS Number:
    F-E,S-D
  - Stowage Category
    A
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - GHS label elements
    The product is classified and labelled according to the Globally Harmonised System (GHS).
  - Hazard pictograms
    - GHS02
    - GHS05
    - GHS08

- Signal word Danger

- Hazard-determining components of labelling:
  - 2-hydroxyethyl methacrylate
  - glutaral
  - 4-methacryloxyethyltrimellitic acid anhydride

- Hazard statements
  - Flammable liquid and vapour.
  - Causes skin irritation.
  - Causes serious eye damage.
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - May cause an allergic skin reaction.

- Precautionary statements
  - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  - Use explosion-proof electrical/ventilating/lighting/equipment.
  - Wear respiratory protection.
Trade name: iBOND Total Etch

(Contd. of page 9)

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**16 Other information**

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
  
  H225 Highly flammable liquid and vapour.
  H227 Combustible liquid.
  H301 Toxic if swallowed.
  H314 Causes severe skin burns and eye damage.
  H315 Causes skin irritation.
  H317 May cause an allergic skin reaction.
  H319 Causes serious eye irritation.
  H331 Toxic if inhaled.
  H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

· **Abbreviations and acronyms:**
  
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  IMDG: International Maritime Code for Dangerous Goods
  IATA: International Air Transport Association
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  DNEL: Derived No-Effect Level (REACH)
  PNEC: Predicted No-Effect Concentration (REACH)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  Flam. Liq.: Flammable liquids
  Flam. Liq. 2: Flammable liquids – Category 2
  Flam. Liq. 3: Flammable liquids – Category 3
  Flam. Liq. 4: Flammable liquids – Category 4
  Acute Tox. 3: Acute toxicity – Category 3
  Skin Corr. 1B: Skin corrosion/irritation – Category 1B
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
  Resp. Sens. 1: Respiratory sensitisation – Category 1
  Skin Sens. 1: Skin sensitisation – Category 1

· **Data compared to the previous version altered.**