**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
  - Trade name: iBOND Total Etch

- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
  - Application of the substance / the mixture: Dental bonding material

- **1.3 Details of the supplier of the safety data sheet**
  - Manufacturer/Supplier: Kulzer GmbH
    Leipziger Straße 2, 63450 Hanau (Germany) Tel.: +49 (0)800 4372522
  - Informing department: E-Mail: msds@kulzer-dental.com

- **1.4 Emergency telephone number:**
  Emergency CONTACT (24-Hour-Number): +49 (0)6132-84463

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
  - Classification according to Regulation (EC) No 1272/2008
    - 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.
    - STOT SE 3 H335 May cause respiratory irritation.

- **2.2 Label elements**
  - Labelling according to Regulation (EC) No 1272/2008
    The product is classified and labelled according to the CLP regulation.
    - Hazard pictograms
      - GHS02
      - GHS05
      - GHS07
      - GHS08
    - Signal word: Danger
    - Hazard-determining components of labelling:
      - 2-hydroxyethyl methacrylate
      - glutaral
      - 4-methacryloxyethyltrimellitic acid anhydride
    - Hazard statements
      - H226 Flammable liquid and vapour.
      - H315 Causes skin irritation.
      - H318 Causes serious eye damage.
      - H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
      - H317 May cause an allergic skin reaction.
      - H335 May cause respiratory irritation.
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 03.06.2017  Revision: 03.06.2017
Version number 3

Trade name: iBOND Total Etch

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures

Description:

Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS:</th>
<th>Reg.nr.:</th>
<th>Ingredient</th>
<th>Flammability</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5</td>
<td>200-578-6</td>
<td>2119457610-43-xxxx</td>
<td>ethanol</td>
<td>Flam. Liq. 2, H225</td>
<td>25-50%</td>
</tr>
<tr>
<td>868-77-9</td>
<td>212-782-2</td>
<td></td>
<td>2-hydroxyethyl methacrylate</td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317</td>
<td>10-25%</td>
</tr>
<tr>
<td>70293-55-9</td>
<td></td>
<td></td>
<td>Poly(methacrylic-oligo-acrylic acid)</td>
<td>Eye Irrit. 2, H319</td>
<td>0-5%</td>
</tr>
<tr>
<td>111-30-8</td>
<td>203-856-5</td>
<td></td>
<td>4-methacryloxyethyltrimellitic acid anhydride</td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317</td>
<td>0-5%</td>
</tr>
<tr>
<td>72869-86-4</td>
<td>276-957-5</td>
<td></td>
<td>diurethandimethacrylate</td>
<td>Aquatic Chronic 3, H412</td>
<td>0-5%</td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1 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.
SECTION 5: Firefighting measures

5.1 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.

5.2 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.

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

SECTION 6: Accidental release measures

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

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

6.3 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.

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

SECTION 7: Handling and storage

7.1 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.

7.2 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).
### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

<table>
<thead>
<tr>
<th>Components with critical values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>64-17-5 ethanol</strong></td>
</tr>
<tr>
<td>Long-term value: 1920 mg/m³, 1000 ppm</td>
</tr>
</tbody>
</table>

| **111-30-8 glutaral** |
| Short-term value: 0.2 mg/m³, 0.05 ppm |
| Long-term value: 0.2 mg/m³, 0.05 ppm |

#### DNELs

| **64-17-5 ethanol** |
| Oral | ge.pop., l.te, syst. | 87 mg/Kg (nd) |
| Dermal | worker profess., l.te., syst. | 343 mg/Kg/d (nd) |
| | ge.pop., acu., local | 950 mg/Kg/d (nd) |
| | ge.pop., l.te, syst. | 206 mg/Kg/d (nd) |
| Inhalative | worker profess., acute, local | 1900 mg/m³ (nd) |
| | worker profess., l.te., syst. | 1900 mg/m³ (nd) |
| | ge.pop., acu., local | 950 mg/m³ (nd) |
| | ge.pop., l.te, syst. | 114 mg/m³ (nd) |

#### PNECs

| **64-17-5 ethanol** |
| freshwater | 0.96 mg/l (nd) |
| marine water | 0.79 mg/l (nd) |
| STP | 580 mg/l (nd) |
| sedim., dw, fre.wat. | 3.6 mg/Kg (nd) |
| soil,dw | 0.63 mg/Kg (nd) |

**Additional information:** The lists that were valid during the compilation were used as basis.

#### 8.2 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.

- **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 break trough 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

### SECTION 9: Physical and chemical properties

- **9.1 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.
  - **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**
    - **Relative density** Not determined
Trade name: iBOND Total Etch

43.0.7

· 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.
· 9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

· 10.1 Reactivity No further relevant information available.
· 10.2 Chemical stability
  · Conditions to be avoided: No decomposition if used and stored according to specifications.
· 10.3 Possibility of hazardous reactions No dangerous reactions known
· 10.4 Conditions to avoid No further relevant information available.
· 10.5 Incompatible materials: No further relevant information available.
· 10.6 Hazardous decomposition products: None
  · Additional information: -

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects
  · Acute toxicity Based on available data, the classification criteria are not met.
· LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral LD50</th>
<th>Oral LC50/4h</th>
<th>Inhalative LC50/4h</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>&gt;5000 mg/kg (rat)</td>
<td>95.6 mg/l (rat)</td>
<td></td>
</tr>
<tr>
<td>41137-60-4 diurethandimethacrylate</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>888-77-9 2-hydroxyethyl methacrylate</td>
<td>&gt;3000 mg/kg (can)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poly(methacrylic-oligo-acrylic acid)</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70293-55-9 4-methacryloxyethyltrimeclic acid anhydride</td>
<td>&gt;2000 mg/kg (mouse)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72869-86-4 diurethandimethacrylate</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Trade name: iBOND Total Etch

**SECTION 12: Ecological information**

- **12.1 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)

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
  - Additional ecological information:
    - General notes: Avoid transfer into the environment.
- **12.5 Results of PBT and vPvB assessment**
  - PBT: Not applicable.
  - vPvB: Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

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

- **European waste catalogue**
  - 18 01 06 chemicals consisting of or containing dangerous substances
### SECTION 14: Transport information

<table>
<thead>
<tr>
<th><strong>14.1 UN-Number</strong></th>
<th>UN1170</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14.2 UN proper shipping name</strong></td>
<td></td>
</tr>
<tr>
<td>ADR</td>
<td>UN1170 ETHANOL SOLUTION</td>
</tr>
<tr>
<td>IMDG</td>
<td>ETHANOL (ETHYL ALCOHOL)</td>
</tr>
<tr>
<td>IATA</td>
<td>Ethanol</td>
</tr>
<tr>
<td><strong>14.3 Transport hazard class(es)</strong></td>
<td></td>
</tr>
<tr>
<td>ADR</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 (F1) Flammable liquids.</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td>Class</td>
<td>3 Flammable liquids.</td>
</tr>
<tr>
<td>Label</td>
<td>3</td>
</tr>
<tr>
<td><strong>14.4 Packing group</strong></td>
<td></td>
</tr>
<tr>
<td>ADR, IMDG, IATA</td>
<td>III</td>
</tr>
<tr>
<td><strong>14.5 Environmental hazards:</strong></td>
<td></td>
</tr>
<tr>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td><strong>14.6 Special precautions for user</strong></td>
<td></td>
</tr>
<tr>
<td>Kemler Number:</td>
<td>Warning: Flammable liquids. 30</td>
</tr>
<tr>
<td>EMS Number:</td>
<td>F-E,S-D</td>
</tr>
<tr>
<td>Stowage Category</td>
<td>A</td>
</tr>
<tr>
<td><strong>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</strong></td>
<td></td>
</tr>
<tr>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

**Transport/Additional information:**

- ADR
  - Limited quantities (LQ) 5L Code: E1
  - Excepted quantities (EQ) Maximum net quantity per inner packaging: 30 ml

(Contd. on page 9)
Trade name: iBOND Total Etch

- Maximum net quantity per outer packaging: 1000 ml
- Transport category: 3
- Tunnel restriction code: D/E
- IMDG
  - Limited quantities (LQ): 5L
  - Code: E1
- Excepted quantities (EQ)
  - Maximum net quantity per inner packaging: 30 ml
  - Maximum net quantity per outer packaging: 1000 ml

- UN "Model Regulation": UN1170, ETHANOL (ETHYL ALCOHOL), 3, III

* SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
  - REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* SECTION 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.
  - 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.
  - H400 Very toxic to aquatic life.
  - H412 Harmful to aquatic life with long lasting effects.

- 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
  - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
  - 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
### Trade name: iBOND Total Etch

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids – Category 2</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids – Category 3</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>Acute toxicity – Category 3</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation – Category 1B</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation – Category 2</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation – Category 1</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation – Category 2</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Respiratory sensitisation – Category 1</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Skin sensitisation – Category 1</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment - acute aquatic hazard – Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 3</td>
<td>Hazardous to the aquatic environment - long-term aquatic hazard – Category 3</td>
</tr>
</tbody>
</table>

* Data compared to the previous version altered.