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

- **1.1 Product identifier**
  - Trade name: *Signum metal bond II*

- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
  - No further relevant information available.

- **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. 2 H225 Highly flammable liquid and vapour.
    - Skin Irrit. 2 H315 Causes skin irritation.
    - 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
    - GHS07
  - **Signal word** Danger
  - **Hazard-determining components of labelling:**
    - methyl methacrylate
    - diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide
  - **Hazard statements**
    - H225 Highly flammable liquid and vapour.
    - H315 Causes skin irritation.
    - H317 May cause an allergic skin reaction.
    - H335 May cause respiratory irritation.
  - **Precautionary statements**
    - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
    - P280 Wear protective gloves/protective clothing/eye protection/face protection.
    - P303+P361+P353 IF ON SKIN (or hair): 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**

(Contd. on page 2)
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: Signum metal bond II

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:
- CAS: 80-62-6
  - EINECS: 201-297-1
  - Reg.nr.: 01-2119452498-28-0000
  - methyl methacrylate
    - Flam.: Liq. 2, H225; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335
    - 50-75%
- CAS: 75980-60-8
  - EINECS: 278-355-8
  - Reg.nr.: 01-2119972295-29
  - diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide
    - Repr. 2, H361f; Aquatic Chronic 2, H411; Skin Sens. 1B, H317
    - 0-5%

- 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.
  If skin irritation continues, consult a doctor.
- 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.
  In case of persistent symptoms consult doctor.

4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

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.
- 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.

5.2 Advice for firefighters
- Protective equipment: Wear self-contained 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 drainage system, surface or ground water.
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.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).

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: Store in cool location.
Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Store in cool, dry conditions in well sealed containers.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with critical values that require monitoring at the workplace:

80-62-6 methyl methacrylate
OEL () Short-term value: 100 ppm
          Long-term value: 50 ppm

DNELs
80-62-6 methyl methacrylate
Dermal worker industr., l.te., syst. 74.3 mg/Kg/d (human)
    Inhalative worker industr., l.te., syst. 210 mg/m3 (human)

PNECs
80-62-6 methyl methacrylate
freshwater 0.94 mg/l (aqua)

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.
Avoid contact with the eyes and skin.
Trade name: Signum metal bond II

· Breathing equipment:
  Not necessary with efficient local exhaust. If exposition to vapours is possible, use breathing protective mask (filter A).

· Protection of hands:
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  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 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: Safety glasses

· Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties
  · General Information
    · Appearance: Fluid
    · Form: Fluid
    · Colour: White
    · Smell: Characteristic
    · Odour threshold: Not determined.

· pH-value: Not determined.

· Change in condition
  · Melting point/freezing point: Not determined
  · Initial boiling point and boiling range: 100 °C

· Flash point: 10 °C

· Inflammability (solid, gaseous) Not applicable.

· Ignition temperature: 430 °C

· Decomposition temperature: Not determined.

· Self-inflammability: Product is not selfigniting.

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures is possible.
**Trade name:** Signum metal bond II

### Critical values for explosion:
- **Lower:** 2.1 Vol %
- **Upper:** 12.5 Vol %

### Steam pressure at 20 °C:
- 47 hPa

### Density
- **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

### 9.2 Other information
- No further relevant information available.

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**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:** If stored longer than recommended and/or above recommended temperature, product may polymerize generating heat.

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**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>Compound</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-62-6 methyl methacrylate</td>
<td>&gt;5000 mg/kg (rat)</td>
<td>&gt;5000 mg/kg (rab)</td>
<td>29.8 mg/l (rat)</td>
</tr>
<tr>
<td>41137-60-4 diurethandimethacrylate</td>
<td>Oral LD50</td>
<td>&gt;5000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>75980-60-8 diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide</td>
<td>Oral LD50</td>
<td>&gt; 5000 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - **Skin corrosion/irritation:** Causes skin irritation.
  - **Serious eye damage/irritation:** Based on available data, the classification criteria are not met.
Trade name: Signum metal bond II

- Respiratory or skin sensitisation
  May cause an allergic skin reaction.
- CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
  · Germ cell mutagenicity Based on available data, the classification criteria are not met.
  · Carcinogenicity Based on available data, the classification criteria are not met.
  · Reproductive toxicity Based on available data, the classification criteria are not met.
- STOT-single exposure
  May cause respiratory irritation.
- STOT-repeated exposure Based on available data, the classification criteria are not met.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

- 12.1 Toxicity
  - Aquatic toxicity:

<table>
<thead>
<tr>
<th>EC50/48h</th>
<th>10 100 mg/l (algae)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC10/100</td>
<td>10 - 100 mg/l (daphnia)</td>
</tr>
</tbody>
</table>

- 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.
- 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

<table>
<thead>
<tr>
<th>16 05 06</th>
<th>Laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals</th>
</tr>
</thead>
</table>
- Uncleaned packagings: Disposal must be made according to official regulations.

SECTION 14: Transport information

- 14.1 UN-Number
  · ADR, IMDG, IATA 1247
- 14.2 UN proper shipping name
  · ADR 1247 METHYL METHACRYLATE MONOMER, STABILIZED, solution
  · IMDG, IATA METHYL METHACRYLATE MONOMER, STABILIZED, solution
### 14.3 Transport hazard class(es)
- **ADR**
- **Class**
- **Label**
  - 3 (F1) Flammable liquids.
- **IMDG, IATA**
- **Class**
- **Label**
  - 3 Flammable liquids.

### 14.4 Packing group
- **ADR, IMDG, IATA**
- **Label** II

### 14.5 Environmental hazards:
- **Marine pollutant:** No

### 14.6 Special precautions for user
- **Warning:** Flammable liquids.
- **Kemler Number:** 339
- **EMS Number:** F-E,S-E

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
- **Label** Not applicable.

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- **Directive 2012/18/EU**
  - Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
  - Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t
- **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.

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**SECTION 15: Regulatory information**

**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.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
**Safety data sheet**

**according to 1907/2006/EC, Article 31**

**Trade name:** Signum metal bond II

<table>
<thead>
<tr>
<th>H335</th>
<th>May cause respiratory irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H361f</td>
<td>Suspected of damaging fertility.</td>
</tr>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

- **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
  - Flam. Liq.: Flammable liquids – Category 2
  - Skin Irrit.: Skin corrosion/irritation – Category 2
  - Skin Sens.: Skin sensitisation – Category 1
  - Repr.: Reproductive toxicity – Category 2
  - Aquatic Chronic: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

- *Data compared to the previous version altered.*