Hazardous according to criteria of Australian Safety and Compensation Council.

1 Identification

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

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

- **Application of the substance / the mixture**
  - Metal-Resin Bonding System

- **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 Hazard(s) Identification

- **Classification of the substance or mixture**
  - 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.

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

- **Hazard pictograms**
  - GHS02
  - GHS07

- **Signal word**
  - Danger

- **Hazard-determining components of labelling:**
  - methyl methacrylate
  - diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide

- **Hazard statements**
  - Highly flammable liquid and vapour.
  - Causes skin irritation.
  - May cause an allergic skin reaction.
  - May cause respiratory irritation.

- **Precautionary statements**
  - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - Use explosion-proof electrical/ventilating/lighting equipment.
  - Avoid breathing dust/fume/gas/mist/vapours/spray.
  - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - Specific treatment (see on this label).
  - Store locked up.

- **Other hazards**

*(Contd. on page 2)*
Trade name: Signum metal bond II

Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition and Information on Ingredients
- Chemical characterisation: Mixtures
  - Description:
  - Dangerous components:
    - methyl methacrylate
      - CAS: 80-62-6
      - EINECS: 201-297-1
      - Flam. Liq. 2, H225; Skin Irrit. 2, H315; Skin Sens. 1, H317; STOT SE 3, H335
      - 50-75%
    - diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide
      - CAS: 75980-60-8
      - EINECS: 278-355-8
      - Repr. 2, H361; Skin Sens. 1B, H317
      - 0-5%
  - Additional information

4 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. 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.
  - Information for doctor
    - Most important symptoms and effects, both acute and delayed
      No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed
      No further relevant information available.

5 Fire Fighting Measures
- 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.
  - Advice for firefighters
  - Protective equipment: Wear self-contained 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 drainage system, surface or ground water.
Trade name: Signum metal bond II

Do not allow to enter the ground/soil.

· 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.
    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.

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

8 Exposure controls and 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>Component</th>
<th>NES (Australia) Short-term value</th>
<th>416 mg/m³, 100 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long-term value</td>
<td>208 mg/m³, 50 ppm</td>
</tr>
<tr>
<td>PEL (USA)</td>
<td>410 mg/m³, 100 ppm</td>
<td></td>
</tr>
<tr>
<td>REL (USA)</td>
<td>410 mg/m³, 100 ppm</td>
<td></td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Short-term value: 410 mg/m³, 100 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Long-term value</td>
<td>205 mg/m³, 50 ppm</td>
</tr>
</tbody>
</table>

· DNELs

<table>
<thead>
<tr>
<th>Component</th>
<th>Dermal worker industr., l.te., syst.</th>
<th>74.3 mg/Kg/d (human)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inhalative worker industr., l.te., syst.</td>
<td>210 mg/m³ (human)</td>
</tr>
</tbody>
</table>

· PNECs

| Component | freshwater | 0.94 mg/l (aqua) |

· Additional information: The lists that were valid during the compilation were used as basis.
Trade name: Signum metal bond II

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.
  - 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.

9 Physical and Chemical Properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - 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.

(Contd. of page 5)
Trade name: Signum metal bond II

- 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.
- Critical values for explosion:
  - Lower: 2,1 Vol %
  - Upper: 12,5 Vol %
- Steam pressure at 20 °C: 47 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: If stored longer than recommended and/or above recommended temperature, product may polymerize generating heat.

11 Toxicological Information
- Information on toxicological effects
- Acute toxicity
  - LD/LC50 values that are relevant for classification:
    | 80-62-6 methyl methacrylate                  |
    | Oral    | LD50   | >5000 mg/kg (rat) |
    | Dermal   | LD50   | >5000 mg/kg (rab) |
    | Inhalative | LC50/4 h | 29.8 mg/l (rat) |
    | 41137-60-4 diurethandimethacrylate           |
    | Oral    | LD50   | >5000 mg/kg (rat) |
Safety Data Sheet
according to WHS Regulations

Printing date 28.01.2018
Revision: 28.01.2018
Version number 4

Trade name: Signum metal bond II

75980-60-8 diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

Oral LD50 > 5000 mg/kg (rat)

- Primary irritant effect:
  - Skin corrosion/irritation: Irritant for skin and mucous membranes.
  - Serious eye damage/irritation: No irritant effect.
  - Respiratory or skin sensitisation: Sensitization possible by skin contact.

- Additional toxicological information: Irritant

12 Ecological Information

- Toxicity
  - Aquatic toxicity:
    75980-60-8 diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide
    EC50/48h 10 - 100 mg/l (algae)
    10 - 100 mg/l (daphnia)

- 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.
- 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: 1247

- UN proper shipping name
  - ADG: 1247 METHYL METHACRYLATE MONOMER, STABILIZED, solution
  - IMDG, IATA: METHYL METHACRYLATE MONOMER, STABILIZED, solution

(Contd. on page 7)
Trade name: Signum metal bond II

- **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
    - Packing group II

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

- **Special precautions for user**
  - Kemler Number: 339
  - EMS Number: F-E, S-E

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

- **Transport/Additional information:**
  - UN "Model Regulation": UN1247, METHYL METHACRYLATE MONOMER, STABILIZED, solution, 3, II

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
    - GHS07

- **Signal word** Danger

- **Hazard-determining components of labelling:**
  - methyl methacrylate
  - diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide

- **Hazard statements**
  - Highly flammable liquid and vapour.
Trade name: Signum metal bond II

Causes skin irritation.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Use explosion-proof electrical/ventilating/lighting equipment.
Avoid breathing dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Specific treatment (see on this label).
Store locked up.

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

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.
H335 May cause respiratory irritation.
H361 Suspected of damaging fertility or the unborn child.

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. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Skin Sens. 1B: Skin sensitisation – Category 1B
Repr. 2: Reproductive toxicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

* Data compared to the previous version altered.