1 Identification

· **Product identifier**
  
  · **Trade name**: Palabond

· **Application of the substance / the mixture** Auxiliary for manufacture of dental prothesis

· **Details of the supplier of the safety data sheet**
  
  · **Manufacturer/Supplier**: Kulzer GmbH
    Leipziger Straße 2, 63450 Hanau (Germany)  
  
  · **Information department**:  
    Tel. +1 (800) 431-1785  Fax: +1 (800) 522-1545  
    e-mail: customer.servicehkna@kulzer-dental.com
  
  · **Emergency telephone number**:  
    Emergency CONTACT (24-Hour-Number)  
    GBK/Infotrac ID  105860: (domestic) 1 800 535 5053 or international (001) 352 323 3500

2 Hazard(s) identification

· **Classification of the substance or mixture**
  
<table>
<thead>
<tr>
<th>Classification</th>
<th>H</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable Liquids - Category 2</td>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
<tr>
<td>Skin Irritation - Category 2</td>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious Eye Damage - Category 1</td>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Skin Sensitizer - Category 1</td>
<td>H317</td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Specific Target Organ Toxicity - Single Exposure - Category 3</td>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

· **Label elements**

  · **GHS label elements**
    The product is classified and labeled according to the Globally Harmonized System (GHS).

  · **Hazard pictograms**
    
    - GHS02
    - GHS05
    - GHS07

  · **Signal word** Danger

  · **Hazard-determining components of labeling:**
    methyl methacrylate
    methacrylic acid
    tetramethylene dimethacrylate

  · **Hazard statements**
    Highly flammable liquid and vapour.  
    Causes skin irritation.  
    Causes serious eye damage.  
    May cause an allergic skin reaction.  
    May cause respiratory irritation.

  · **Precautionary statements**
    Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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.
Store locked up.

· Hazard description:
  · Canadian Hazard Symbols
    B2 - Flammable liquid
    D2B - Toxic material causing other toxic effects
    E - Corrosive material

· Classification system
  · NFPA ratings for USA (scale 0-4)
    Health = 2
    Fire = 3
    Reactivity = 2

  · HMIS-Ratings (Scale 0-4)
    HEALTH
    Health = 1
    FIRE
    Fire = 3
    REACTIVITY
    Reactivity = 2

· Other hazards -

3 Composition/information on ingredients

· Chemical characterization: Mixtures
  · Description: Composition based on methacrylates

· Dangerous components:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>methyl methacrylate</td>
<td>Flammable Liquids - Category 2, H225; Skin Irritation - Category 2, H315;</td>
<td>75-90% w/w</td>
</tr>
<tr>
<td></td>
<td>Skin Sensitizer - Category 1, H317; Specific Target Organ Toxicity - Single</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exposure - Category 3, H335</td>
<td></td>
</tr>
<tr>
<td>methacrylic acid</td>
<td>Skin Corrosion - Category 1A, H314; Acute Toxicity (Oral) - Category 4,</td>
<td>0-5% w/w</td>
</tr>
<tr>
<td></td>
<td>H302; Acute Toxicity (Dermal) – Category 4, H312; Flammable Liquids -</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category 4, H227</td>
<td></td>
</tr>
<tr>
<td>tetramethylene dimethacrylate</td>
<td>Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319;</td>
<td>0-5% w/w</td>
</tr>
<tr>
<td></td>
<td>Specific Target Organ Toxicity - Single Exposure - Category 3, H335</td>
<td></td>
</tr>
</tbody>
</table>
4 First-aid measures

- **Description of first aid measures**
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: Rinse out mouth and then drink plenty of water. If symptoms persist consult doctor.

Composition based on methacrylates

- **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, sand, extinguishing powder. Do not use water.
  - For safety reasons unsuitable extinguishing agents: Water.
  - Water with full 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: No special measures required.

6 Accidental release measures

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

- **Environmental precautions**: Prevent seepage into sewage system, workpits and cellars.

- **Methods and material for containment and cleaning up**
  - Absorb with liquid binding material (diatomite, universal binders, for small amounts tissues).
  - Do not flush with water or aqueous cleansing agents.
  - Send for recovery or disposal in suitable receptacles.

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

7 Handling and storage

- **Handling**
  - **Precautions for safe handling**
    Keep receptacles tightly sealed.
    Keep away from heat and direct sunlight.
  - **Information about protection against explosions and fires:**
    Keep ignition sources away - Do not smoke.
    Protect from heat.
    Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
  - **Storage**
    - **Requirements to be met by storerooms and receptacles:** Store in a cool location.
    - **Further information about storage conditions:**
      Keep cool, if possible (not above 25 °C).
      Store in cool, dry conditions in well sealed receptacles.
      Protect from heat and direct sunlight.
  - **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

- **Control parameters**
  - **Components with limit values that require monitoring at the workplace:**
    - **80-62-6 methyl methacrylate**
      - **EL ()** Short-term value: 125 ppm
        Long-term value: 50 ppm
      - Skin, Z, A
    - **79-41-4 methacrylic acid**
      - **EL ()** 20 ppm
        Skin
  - **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
  - **Personal protective equipment**
    - **General protective and hygienic measures**
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing
      Wash hands before breaks and at the end of 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.

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 through 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:
Protective goggles are recommended.
Tightly sealed goggles.

Body protection:
Light weight protective clothing

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
- Form: Fluid
- Color: Colorless
- Odor: Characteristic
- Odor threshold: Not determined.

pH-value: Not determined.

Change in condition
- Melting point/Melting range: Undetermined
- Boiling point/Boiling range: 100 °C (212 °F)

Flash point: 10 °C (50 °F)

Flammability (solid, gaseous) Not applicable.

Ignition temperature: 370.0 °C (698 °F)

Decomposition temperature: Not determined.
10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **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**: Product might polymerize after considerable exceeding of recommended storage time or temperature.

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)
43.0.7

79-41-4 methacrylic acid

<table>
<thead>
<tr>
<th>Exposure Route</th>
<th>LD50</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>2260 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>500 mg/kg (rab)</td>
</tr>
</tbody>
</table>

2082-81-7 tetramethylene dimethacrylate

<table>
<thead>
<tr>
<th>Exposure Route</th>
<th>LD50</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50</td>
<td>10120 mg/kg (rat)</td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
  The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
  Irritant

- **Carcinogenic categories**
  - IARC (International Agency for Research on Cancer)
    - 80-62-6 methyl methacrylate: 3
  - NTP (National Toxicology Program)
    - None of the ingredients is listed.

12 Ecological information

- **Toxicity**
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
    - Bioaccumulative potential: No further relevant information available.
    - Mobility in soil: No further relevant information available.
- **Additional ecological information:**
  - General notes:
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - 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.
14 Transport information

- **UN-Number**
  - DOT
  - TDG, IMDG, IATA
    - UN2924
    - 2924

- **UN proper shipping name**
  - TDG
    - 2924 FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED)
  - IMDG, IATA
    - FLAMMABLE LIQUID, CORROSIVE, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, METHACRYLIC ACID, STABILIZED)

- **Transport hazard class(es)**
  - DOT
    - Class
      - 3 Flammable liquids
    - Label
      - 3
  - TDG (Transport dangerous goods):
    - Class
      - 3 (FC) Flammable liquids
    - Label
      - 3+8
  - IMDG, IATA
    - Class
      - 3 Flammable liquids
    - Label
      - 3+8

- **Packing group**
  - DOT, TDG, IMDG, IATA
    - II

- **Environmental hazards:**
  - Marine pollutant: No
Trade name: Palabond

- Special precautions for user:
  - Warning: Flammable liquids
  - EMS Number: 338
  - F-E,S-C

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

- Transport/Additional information:

- UN "Model Regulation": UN2924, Flammable liquids, corrosive, n.o.s. (Methyl methacrylate monomer, stabilized, Methacrylic acid, stabilized), 3 (8), II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - SARA Section 355 (extremely hazardous substances)
  - None of the ingredients is listed.

- GHS label elements
  - The product is classified and labeled according to the Globally Harmonized System (GHS).

  Hazard pictograms

  GHS02  GHS05  GHS07

  · Signal word Danger
  
  Hazard-determining components of labeling:
  methyl methacrylate
  methacrylic acid
  tetramethylene dimethacrylate

  Hazard statements
  Highly flammable liquid and vapour.
  Causes skin irritation.
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  Precautionary statements
  Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  Wear protective gloves/protective clothing/eye protection/face protection.
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  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.
  Store locked up.

(Contd. on page 10)
Trade name: Palabond

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.
  H227 Combustible liquid.
  H302 Harmful if swallowed.
  H312 Harmful in contact with skin.
  H314 Causes severe skin burns and eye damage.
  H315 Causes skin irritation.
  H317 May cause an allergic skin reaction.
  H319 Causes serious eye irritation.
  H335 May cause respiratory irritation.

- Date of preparation / last revision 06/03/2017 / 2
- Abbreviations and acronyms:
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  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)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  WHMIS: Workplace Hazardous Materials Information System (Canada)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative

- * Data compared to the previous version altered.