### 1 Identification

- **Product identifier**
  - Trade name: Dentalon plus liquid

- **Application of the substance / the mixture**
  Manufacture of dental prothesis

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**
    Kulzer GmbH
    Leipziger Straße 2, 63450 Hanau (Germany)
    Tel.: +49 (0)800 4372522
  - **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**
  - Flammable Liquids - Category 3 H226 Flammable liquid and vapour.
  - Skin Irritation - Category 2 H315 Causes skin irritation.
  - Skin Sensitizer - Category 1 H317 May cause an allergic skin reaction.
  - Specific Target Organ Toxicity - Single Exposure - Category 3 H335 May cause respiratory irritation.
  - Specific Target Organ Toxicity - Repeated Exposure H373 May cause damage to organs through prolonged or repeated exposure.

- **Label elements**
  - **GHS label elements**
    The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms**
    - GHS02
    - GHS07
    - GHS08

- **Signal word**
  Warning

- **Hazard-determining components of labeling:**
  - n-butyl methacrylate
  - 2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol
  - ethyl methacrylate

- **Hazard statements**
  - Flammable liquid and vapour.
  - Causes skin irritation.
  - May cause an allergic skin reaction.
  - May cause respiratory irritation.
  - May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - (Contd. on page 2)
Trade name: Dentalon plus liquid

Use explosion-proof [electrical/ventilating/lighting] equipment.
Do not breathe dust/fume/gas/mist/vapours/spray.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
Specific treatment (see on this label).
Store locked up.

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

- Classification system
  - NFPA ratings for USA (scale 0-4)
    - Health = 1
    - Fire = 3
    - Reactivity = 2

- HMIS-Ratings (Scale 0-4)
  - Health = 1
  - Fire = 3
  - Reactivity = 2

- Other hazards -

3 Composition/information on ingredients

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

- Dangerous components:

<table>
<thead>
<tr>
<th>Chemical Code</th>
<th>Chemical Name</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-88-1</td>
<td>n-butyl methacrylate</td>
<td>Flammable Liquids - Category 3, H226; Skin Irritation - Category 2, H315; Skin Sensitizer - Category 1, H317; Specific Target Organ Toxicity - Single Exposure - Category 3, H335</td>
<td>75-90% w/w</td>
</tr>
<tr>
<td>97-63-2</td>
<td>ethyl methacrylate</td>
<td>Flammable Liquids - Category 2, H225; Skin Irritation - Category 2, H315; Eye Irritation - Category 2A, H319; Skin Sensitizer - Category 1, H317; Specific Target Organ Toxicity - Single Exposure - Category 3, H335</td>
<td>5-10% w/w</td>
</tr>
<tr>
<td>25973-55-1</td>
<td>2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol</td>
<td>Specific Target Organ Toxicity - Repeated Exposure - Category 2, H373</td>
<td>0-5% w/w</td>
</tr>
</tbody>
</table>

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

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

· Reference to other sections
  No dangerous substances are released.
  See Section 8 for information on personal protection equipment.

7 Handling and storage

· Handling
  · Precautions for safe handling Keep receptacles tightly sealed.
Trade name: **Dentalon plus liquid**

- **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 receptacles:** No special requirements.
    - **Information about storage in one common storage facility:** Not required.
  - **Further information about storage conditions:** Keep cool, if possible (not above 25 °C).

- **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**

<table>
<thead>
<tr>
<th>Components with limit values that require monitoring at the workplace:</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-88-1 n-butyl methacrylate</td>
</tr>
<tr>
<td><strong>EL ()</strong></td>
</tr>
<tr>
<td>Z, A 50 ppm</td>
</tr>
<tr>
<td>97-63-2 ethyl methacrylate</td>
</tr>
<tr>
<td><strong>EL ()</strong></td>
</tr>
<tr>
<td>Z, A 50 ppm</td>
</tr>
</tbody>
</table>

- **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 required.
  - **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.

(Contd. on page 5)
**Safety Data Sheet**

acc. to OSHA HCS

Printing date 06/03/2017 Reviewed on 06/03/2017

---

**Trade name:** Dentalon plus liquid

(Contd. of page 4)

- **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**

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>- Form: Fluid</td>
</tr>
<tr>
<td>- Color: Colorless</td>
</tr>
<tr>
<td>- Odor: Characteristic</td>
</tr>
<tr>
<td>- Odor threshold: Not determined.</td>
</tr>
<tr>
<td>- pH-value: Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Melting point/Melting range: undetermined</td>
</tr>
<tr>
<td>- Boiling point/Boiling range: 119 °C (246 °F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash point:</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 °C (75 °F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flammability (solid, gaseous):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ignition temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>490.0 °C (914 °F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decomposition temperature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Auto igniting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product is not selfigniting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Danger of explosion:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explosion limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Lower: Not determined.</td>
</tr>
<tr>
<td>- Upper: Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor pressure at 20 °C (68 °F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 hPa (30 mm Hg)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Density at 20 °C (68 °F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.940 g/cm³ (7.844 lbs/gal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relative density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaporation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solubility in / Miscibility with</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Water: Not miscible or difficult to mix</td>
</tr>
</tbody>
</table>

(Contd. on page 6)
Trade name: Dentalon plus liquid

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:
  · dynamic at 20 °C (68 °F): 1 mPas
  · kinematic: Not determined.

· Solvent content:

· Solids content: 1.0 %

· Other information: No further relevant information available.

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:

<table>
<thead>
<tr>
<th>97-88-1 n-butyl methacrylate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>&gt; 2000 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>&gt; 2000 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
<td>4910 mg/l (rat)</td>
</tr>
<tr>
<td>Sensitization Sensib.</td>
<td>sensib. (nd)</td>
</tr>
<tr>
<td></td>
<td>Hautreizende katagorie 2 (UN-GHS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>41137-60-4 diurethandimethacrylate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>&gt;5000 mg/kg (rat)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>97-63-2 ethyl methacrylate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>14800 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>&gt; 2000 mg/kg (can)</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
<td>38 mg/l (rat)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5137-55-3 methyltrioctylammonium chloride</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>223 mg/kg (rat)</td>
</tr>
</tbody>
</table>

· Primary irritant effect:
  · on the skin: Irritant to skin and mucous membranes.
  · on the eye: Irritating effect.
Trade name: **Dentalon plus liquid**

- **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)**
    None of the ingredients is listed.
  - **NTP (National Toxicology Program)**
    None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:**
    - **97-88-1 n-butyl methacrylate**
      - EC50/72h: 31.2 mg/l (algae) (OECD 201)
      - EC50/48h: 25.4 mg/l (daphnia) (OECD 202 Teil 1)
      - LC50/96h: 5.57 mg/l (fish) (OECD 203, semi-statisch)

- **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 product to reach ground water, water course or sewage system.
    - Danger to drinking water if even small quantities leak into the ground.
- **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.
    Small quantities can be polymerized with the matching system component(s) and the cured solid material can be disposed of with the regular garbage. Larger quantities must be disposed of following the regulations of the local authorities.

(Contd. on page 8)
### Trade name: Dentalon plus liquid

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

### 14 Transport information

<table>
<thead>
<tr>
<th><strong>UN-Number</strong></th>
<th>UN1993</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOT, TDG, IMDG, IATA</strong></td>
<td>1993</td>
</tr>
</tbody>
</table>

- **UN proper shipping name**
  - **TDG**
    - 1993 FLAMMABLE LIQUID, N.O.S. (BUTYL METHACRYLATE, STABILIZED, ETHYL METHACRYLATE, STABILIZED)
  - **IMDG, IATA**
    - FLAMMABLE LIQUID, N.O.S. (BUTYL METHACRYLATE, STABILIZED, ETHYL METHACRYLATE, STABILIZED)

- **Transport hazard class(es)**
  - **DOT**
    - **Class** 3
    - **Label** Flammable liquids
  - **TDG (Transport dangerous goods):**
    - **Class** 3 (F1)
    - **Label** Flammable liquids
  - **IMDG, IATA**
    - **Class** 3
    - **Label** Flammable liquids

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

- **Environmental hazards:**
  - **Marine pollutant:** No
Trade name: **Dentalon plus liquid**

**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.png) GHS02  ![](GHS07.png) GHS07  ![](GHS08.png) GHS08

- **Signal word** Warning
- **Hazard-determining components of labeling:**
  - n-butyl methacrylate
  - 2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol
  - ethyl methacrylate
- **Hazard statements**
  - Flammable liquid and vapour.
  - Causes skin irritation.
  - May cause an allergic skin reaction.
  - May cause respiratory irritation.
  - May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - Use explosion-proof [electrical/ventilating/lighting] equipment.
  - Do not breathe dust/fume/gas/mist/vapours/spray.
  - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
  - Specific treatment (see on this label).
  - Store locked up.

(Contd. on page 10)
Trade name: Dentalon plus liquid

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.
  H226 Flammable liquid and vapour.
  H315 Causes skin irritation.
  H317 May cause an allergic skin reaction.
  H319 Causes serious eye irritation.
  H335 May cause respiratory irritation.
  H373 May cause damage to organs through prolonged or repeated exposure.

- Date of preparation / last revision 06/03/2017 / 3

- 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.