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

1.1 Product identifier
   - Trade name: Dentalon plus liquid

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Application of the substance / the mixture: Manufacture of dental prothesis

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.
     Skin Sens. 1 H317 May cause an allergic skin reaction.
     STOT SE 3 H335 May cause respiratory irritation.
     Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements
   - Classification according to Regulation (EC) No 1272/2008
     The product is classified and labelled according to the CLP regulation.
     - Hazard pictograms

   - Signal word: Warning

   - Hazard-determining components of labelling:
     - n-butyl methacrylate
     - ethyl methacrylate

   - Hazard statements
     H226 Flammable liquid and vapour.
     H315 Causes skin irritation.
     H317 May cause an allergic skin reaction.
     H335 May cause respiratory irritation.
     H412 Harmful to aquatic life with long lasting effects.

   - Precautionary statements
     P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
     P241 Use explosion-proof electrical/ventilating/lighting/equipment.
     P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

(Contd. on page 2)
SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterisation: Mixtures
- Description: Product based on methacrylates

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS:</th>
<th>Reg.nr.:</th>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-88-1</td>
<td>202-615-1</td>
<td>2119486394-28-0000</td>
<td>n-butyl methacrylate</td>
<td>75-90%</td>
</tr>
<tr>
<td>97-63-2</td>
<td>202-597-5</td>
<td>05-2114105438-54-XXXX</td>
<td>ethyl methacrylate</td>
<td>5-10%</td>
</tr>
<tr>
<td>25973-55-1</td>
<td></td>
<td>01-2119955668-17-0000</td>
<td>2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol</td>
<td>0-5%</td>
</tr>
<tr>
<td>5137-55-3</td>
<td>225-896-2</td>
<td></td>
<td>methyltrioctylammonium chloride</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>

- SVHC

| CAS       | 25973-55-1 | 2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol |

- 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. If symptoms persist, consult doctor.
  - After swallowing Rinse out mouth and then drink plenty of water. In case of persistent symptoms consult doctor.

- Product based on methacrylates

- 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.

(Contd. on page 3)
SECTION 5: Firefighting measures

- 5.1 Extinguishing media
  - Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.
  - For safety reasons unsuitable extinguishing agents:
    Water.
    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: No special measures required.
  - 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: Prevent material from reaching sewage system, holes and cellars.

- 6.3 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.

- 6.4 Reference to other sections
  No dangerous materials are released.
  See Section 8 for information on personal protection equipment.

SECTION 7: Handling and storage

- 7.1 Precautions for safe handling
  Keep containers tightly sealed.
  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).

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

SECTION 8: Exposure controls/personal protection

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

- 8.1 Control parameters
  Components with critical values that require monitoring at the workplace:
  The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Trade name: Dentalon plus liquid

- **DNELs**
  - **97-88-1 n-butyl methacrylate**
    - **Dermal**
      - worker industr., l.te., local
      - 5 mg/Kg/d (nd)
    - **Inhalative**
      - worker industr., l.te., local
      - 409 mg/m3 (nd)

- **PNECs**
  - **97-88-1 n-butyl methacrylate**
    - freshwater
      - 0.17 mg/l (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.
      - 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.
    - **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:**
    - Protective goggles are recommended.
    - Tightly sealed safety glasses.
  - **Body protection:** Light weight protective clothing
### SECTION 9: Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

- **General Information**
  - **Appearance:** Fluid
  - **Form:** Colourless
  - **Smell:** Characteristic
  - **Odour threshold:** Not determined.
  - **pH-value:** Not determined.

- **Change in condition**
  - **Melting point/Melting range:** Not determined
  - **Boiling point/Boiling range:** 119 °C

- **Flash point:** 24 °C

- **Inflammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 490.0 °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:** Not determined.
  - **Upper:** Not determined.

- **Steam pressure at 20 °C:** 40 hPa

- **Density at 20 °C:** 0.940 g/cm³
  - **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 at 20 °C:** 1 mPas
  - **Kinematic:** Not determined.

- **Solvent content:**
  - **Solids content:** 1.0 %

**9.2 Other information**

No further relevant information available.

### SECTION 10: Stability and reactivity

**10.1 Reactivity** No further relevant information available.
Trade name: Dentalon plus liquid

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.

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>Chemical</th>
<th>LD50</th>
<th>LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>97-88-1 n-butyl methacrylate</td>
<td>&gt; 2000 mg/kg (rat)</td>
<td>&gt; 2000 mg/kg (rabbit)</td>
</tr>
<tr>
<td>41137-60-4 diurethandimethacrylate</td>
<td>&gt;5000 mg/kg (rat)</td>
<td>4910 mg/l (rat)</td>
</tr>
<tr>
<td>97-63-2 ethyl methacrylate</td>
<td>&gt; 2000 mg/kg (can)</td>
<td>38 mg/l (rat)</td>
</tr>
<tr>
<td>5137-55-3 methyltrioctylammonium chloride</td>
<td>223 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.
- Respiratory or skin sensitisation
  May cause an allergic skin reaction.

CMR effects (carcinogenicity, 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:
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)

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:
Do not allow product to reach ground water, water bodies or sewage system.
Danger to drinking water if even small quantities leak into soil.

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.
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.

European waste catalogue
18 01 06 chemicals consisting of or containing dangerous substances

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

SECTION 14: Transport information

14.1 UN-Number
ADR, IMDG, IATA 1993

14.2 UN proper shipping name
ADR 1993 FLAMMABLE LIQUID, N.O.S. (not viscous)
(BUTYL METHACRYLATE, STABILIZED, ETHYL METHACRYLATE, STABILIZED)
### Trade name: Dentalon plus liquid

<table>
<thead>
<tr>
<th>IMDG, IATA</th>
<th>FLAMMABLE LIQUID, N.O.S. (BUTYL METHACRYLATE, STABILIZED, ETHYL METHACRYLATE, STABILIZED)</th>
</tr>
</thead>
</table>

### 14.3 Transport hazard class(es)

- **ADR**
  - Class 3 (F1) Flammable liquids.
  - Label 3

- **IMDG, IATA**
  - Class 3 Flammable liquids.
  - Label 3

### 14.4 Packing group

- **ADR, IMDG, IATA**
  - Packing group III

### 14.5 Environmental hazards:

- **Marine pollutant:** No

### 14.6 Special precautions for user

- **Warning:** Flammable liquids.
  - Kemler Number: 30
  - EMS Number: F-E,S-E

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

- **Not applicable.**

### Transport/Additional information:

- **UN "Model Regulation":** UN1993, FLAMMABLE LIQUID, N.O.S., special provision 640E (n-BUTYL METHACRYLATE, STABILIZED, ETHYL METHACRYLATE, STABILIZED), 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
Trade name: Dentalon plus liquid

- National regulations
- Other regulations, limitations and prohibitive regulations
  - Substances of very high concern (SVHC) according to REACH, Article 57
    25973-55-1 2-(2-Hydroxy-3,5-di-tert-pentylphenyl)-2H-benzotriazol
  - 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.
  H226 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.
  H335 May cause respiratory irritation.
  H373 May cause damage to organs through prolonged or repeated exposure.
  H400 Very toxic to aquatic life.
  H410 Very toxic to aquatic life with long lasting effects.
  H413 May cause long lasting harmful effects to aquatic life.

- 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
  SVHC: Substances of Very High Concern
  vPvB: very Persistent and very Bioaccumulative
  Flam. Liq. 2: Flammable liquids – Category 2
  Flam. Liq. 3: Flammable liquids – Category 3
  Acute Tox. 3: Acute toxicity – Category 3
  Skin Corr. 1B: Skin corrosion/irritation – Category 1B
  Skin Corr. 2: Skin corrosion/irritation – Category 2
  Skin Sens. 1: Skin sensitisation – Category 1
  STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
  STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
  Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
  Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
  Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
  Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
  Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4

* Data compared to the previous version altered.