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

1.1 Product identifier
   - Trade name: GLUMA Bond universal

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
   - 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.
     Eye Irrit. 2 H319 Causes serious eye irritation.
     Skin Sens. 1 H317 May cause an allergic skin reaction.
     STOT SE 3 H336 May cause drowsiness or dizziness.
     Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

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:
       7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl
       bismethacrylate
       acetone
       4-methacryloxyethyltrimellitic acid anhydride
     - Hazard statements
       H225 Highly flammable liquid and vapour.
       H315 Causes skin irritation.
       H319 Causes serious eye irritation.
       H317 May cause an allergic skin reaction.
       H336 May cause drowsiness or dizziness.
       H412 Harmful to aquatic life with long lasting effects.
     - Precautionary statements
       P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
       P261 Avoid breathing mist/vapours/spray.
       P273 Avoid release to the environment.
Trade name: GLUMA Bond universal

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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 [or 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.

Additional information:
Contains isocyanates. May produce an allergic reaction.

2.3 Other hazards

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:

- acetone
  CAS: 67-64-1
  EINECS: 200-662-2
  Reg.nr.: 01-2119471330-49-xxxx
  Flam. Liq. 2, H225
  Eye Irrit. 2, H319; STOT SE 3, H336
  25-50%

- 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate
  CAS: 72869-86-4
  EINECS: 276-957-5
  Reg.nr.: 01-2120751202-68-xxxx
  Aquatic Chronic 2, H411
  Skin Sens. 1B, H317
  ≥ 10-<25%

- 4-methacryloxyethyltrimellitic acid anhydride
  CAS: 70293-55-9
  10-25%

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 and call for doctor for safety reasons.
  In case of unconsciousness bring patient into stable side position for transport.

- After skin contact
  If skin irritation continues, consult a doctor.

- After eye contact
  Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.

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

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.
Safety data sheet according to 1907/2006/EC, Article 31

Printing date 29.06.2021 Version number 4 Revision: 29.06.2021

Trade name: GLUMA Bond universal

(Contd. of page 2)

- For safety reasons unsuitable extinguishing agents: 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).
  Ensure adequate ventilation.
  Send for recovery or disposal in suitable containers.
- 6.4 Reference to other sections
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for information on disposal.

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: Store in cool location.
    - Information about storage in one common storage facility: Not required.
    - Further information about storage conditions:
      - Keep receptacle tightly sealed.
      - Protect from the effects of light.
      - 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
  - Additional information about design of technical systems: No further data; see item 7.
  - Components with critical values that require monitoring at the workplace:
    | Substance     | Limit Value | Measurement Method |
    |---------------|-------------|-------------------|
    | 67-64-1 acetone | OEL 1210 mg/m³, 500 ppm | |
    |               | IOELV       |                   |
    | 67-64-1 acetone | DNELs       |                   |
    | Oral          |             | 62 mg/Kg (nd)     |

(Contd. on page 4)
### 52.1.17

<table>
<thead>
<tr>
<th></th>
<th>Dermal worker industr., l.te., syst.</th>
<th>Inhalative worker industr., l.te., sys.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ge.pop., l.te, syst.</td>
<td>ge.pop., l.te, syst.</td>
</tr>
<tr>
<td>Oral</td>
<td>186 mg/Kg/d (nd)</td>
<td>1210 mg/m3 (nd)</td>
</tr>
<tr>
<td></td>
<td>62 mg/Kg/d (nd)</td>
<td>2420 mg/m3 (nd)</td>
</tr>
<tr>
<td></td>
<td>200 mg/m3 (nd)</td>
<td></td>
</tr>
</tbody>
</table>

### 72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate

<table>
<thead>
<tr>
<th></th>
<th>Oral ge.pop., l.te, syst.</th>
<th>Dermal ge.pop., l.te, syst.</th>
<th>Inhalative ge.pop., l.te, syst.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.3 mg/Kg (nd)</td>
<td>1.3 mg/Kg/d (nd)</td>
<td>3.3 mg/m3 (nd)</td>
</tr>
<tr>
<td></td>
<td>0.7 mg/Kg/d (nd)</td>
<td>0.6 mg/m3 (nd)</td>
<td></td>
</tr>
</tbody>
</table>

### PNECs

<table>
<thead>
<tr>
<th></th>
<th>freshwater 10.6 mg/l (nd)</th>
<th>marine water 1.06 mg/l (rabbit)</th>
<th>STP 19.5 mg/l (nd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sedim., dw, fre.wat. 30.4 mg/Kg (nd)</td>
<td>sedim., dw, mar.wat. 3.04 mg/Kg (nd)</td>
<td>soil,dw 0.112 mg/Kg (nd)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>freshwater 0.01 mg/l (nd)</th>
<th>marine water 0.001 mg/l (nd)</th>
<th>STP 3.61 mg/l (nd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sedim., dw, fre.wat. 4.56 mg/Kg (nd)</td>
<td>sedim., dw, mar.wat. 0.46 mg/Kg (nd)</td>
<td>soil,dw 0.91 mg/Kg (nd)</td>
</tr>
</tbody>
</table>

### 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**
    - Avoid contact with the eyes.
    - 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:** Use breathing protection against the effects of fumes/dust/aerosol.
  - **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.
    - Check protective gloves prior to each use for their proper condition.

(Contd. on page 5)
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 breakthrough 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: Tightly sealed safety glasses.

Body protection: Lightweight protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- General Information
  - Appearance:
    - Form: Liquid
    - Colour: Clear
    - 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: Not determined
  - Flash point: -19 °C
  - Inflammability (solid, gaseous) Not applicable.
  - 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: Not determined.
  - Upper: Not determined.

- Steam pressure: Not determined.

- Density at 20 °C 0.99 g/cm³
  - Relative density Not determined.
  - Vapour density Not determined.
  - Evaporation rate Not determined.

- Solubility in / Miscibility with
  - Water: Partly miscible

- Partition coefficient: n-octanol/water: Not determined.

- Viscosity:
  - dynamic: Not determined.
Trade name: GLUMA Bond universal

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· kinetic: Not determined.

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No further relevant information available.

10.2 Chemical stability
· Conditions to be avoided: Protect from heat and direct sunlight.

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: -

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>Acetone</td>
<td>5800 mg/kg (rat)</td>
<td>&gt;15800 mg/kg (rabbit)</td>
<td>76 mg/l (rat)</td>
</tr>
<tr>
<td>7,7,9-or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate</td>
<td>&gt;5000 mg/kg (rat) (OECD 401)</td>
<td>&gt;2000 mg/kg (rat) (OECD 402)</td>
<td></td>
</tr>
<tr>
<td>4-methacryloxyethyltrimellitic acid anhydride</td>
<td>&gt;2000 mg/kg (mouse)</td>
<td>&gt;2000 mg/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

· Primary irritant effect:
  · Skin corrosion/irritation
  Causes skin irritation.
  · Serious eye damage/irritation
  Causes serious eye irritation.
  · Respiratory or skin sensitisation
  May cause an allergic skin reaction.

· Additional toxicological information:
  · 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 drowsiness or dizziness.
  · 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:

67-64-1 acetone
- EC50/48h: 8800 mg/l (daphnia) (OECD 203)
- LC50/96h: 6210 mg/l (fish) (OECD 203)

72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate
- EC50/48h: >1.2 mg/l (daphnia) (OECD 202)
- LC50/96h: 10.1 mg/l (fish) (OECD 203)
- ErC50 / 72 h: >0.68 mg/l (algae) (OECD 201)
- NOEC / 72h: 0.21 mg/l (algae) (OECD 201)

12.2 Persistence and degradability

67-64-1 acetone
- Biodegradation: 90.9 % /28d (nd) (OECD 301D)

72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate
- Biodegradation: 22 % /28d (nd) (OECD 301B; ISO/ 9439/ EEC 92/69/V, C.4-C)

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
  - Disposal must be made according to official regulations.
  - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

European waste catalogue
- 18 01 06*: chemicals consisting of or containing hazardous substances

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

SECTION 14: Transport information

14.1 UN-Number
- ADR, IMDG, IATA: UN1090
### Trade name: GLUMA Bond universal

<table>
<thead>
<tr>
<th>14.2 UN proper shipping name</th>
<th>1090 ACETONE, mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td></td>
</tr>
<tr>
<td>IMDG, IATA</td>
<td>ACETONE, mixture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.3 Transport hazard class(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>14.4 Packing group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR, IMDG, IATA</td>
</tr>
<tr>
<td>II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.5 Environmental hazards:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine pollutant: No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.6 Special precautions for user</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warning</strong>: Flammable liquids.</td>
</tr>
<tr>
<td>Kemler Number: 33</td>
</tr>
<tr>
<td>EMS Number: F-E,S-D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport category: 2</td>
</tr>
<tr>
<td>Tunnel restriction code: D/E</td>
</tr>
<tr>
<td>UN &quot;Model Regulation&quot;: UN1090, ACETONE mixture, 3, II</td>
</tr>
</tbody>
</table>

#### SECTION 15: Regulatory information

<table>
<thead>
<tr>
<th>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15.2 Chemical safety assessment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Chemical Safety Assessment has not been carried out.</td>
</tr>
</tbody>
</table>

(Contd. on page 9)
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.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
- H411 Toxic to aquatic life with long lasting effects.

Abbreviations and acronyms:
- ADR: Accord relatif au transport international 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. 2: Flammable liquids – Category 2
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
- Skin Sens. 1: Skin sensitisation – Category 1
- Skin Sens. 1B: Skin sensitisation – Category 1B
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- 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

* Data compared to the previous version altered.