1 Identification

- Product identifier
  - Trade name: GLUMA Bond universal
  - Application of the substance / the mixture: Dental bonding material

- 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)
    ID 105860: (domestic) 1 800 535 5053 or international (001) 352 323 3500

2 Hazard identification

- Classification of the substance or mixture
  - Flammable Liquids - Category 2 H225 Highly flammable liquid and vapour.
  - Skin Irritation - Category 2 H315 Causes skin irritation.
  - Eye Irritation - Category 2A H319 Causes serious eye irritation.
  - Skin Sensitizer - Category 1 H317 May cause an allergic skin reaction.
  - Specific Target Organ Toxicity - Single Exposure - Category 3 H336 May cause drowsiness or dizziness.

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

  - GHS02
  - GHS07

- Signal word Danger

- Hazard-determining components of labeling:
  - 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl
    bismethacrylate
  - acetone
  - 4-methacryloyloxyethyltrimellitic acid anhydride

- Hazard statements
  - Highly flammable liquid and vapour.
  - Causes skin irritation.
  - Causes serious eye irritation.
  - May cause an allergic skin reaction.
  - May cause drowsiness or dizziness.

- Precautionary statements
  - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  - Avoid breathing mist/vapours/spray.
  - Avoid release to the environment.
**Trade name:** GLUMA Bond universal

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.

**Classification system**

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

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

**Other hazards**

---

**3 Composition/Information on ingredients**

- **Chemical characterization:** Mixtures
- **Description:** -

- **Dangerous components:**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Chemical Name</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-64-1</td>
<td>acetone</td>
<td>25-50% w/w *</td>
</tr>
<tr>
<td>72869-86-4</td>
<td>7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxo-5,12-diazahexadecane-1,16-diyl bismethacrylate</td>
<td>10-25% w/w *</td>
</tr>
<tr>
<td>70293-55-9</td>
<td>4-methacryloxyethyltrimellitic anhydride</td>
<td>10-25% w/w *</td>
</tr>
</tbody>
</table>

* Actual concentration ranges are withheld as a trade secret.

- **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 and to be sure call for a doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  
  - **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 a doctor.
  
  - **After swallowing**
    If symptoms persist consult doctor.
    Rinse out mouth and then drink plenty of water.
  
- **Information for doctor**

  - **Most important symptoms and effects, both acute and delayed**
    No further relevant information available.

(Contd. of page 3)
Trade name: GLUMA Bond universal

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents
    CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - For safety reasons unsuitable extinguishing agents
    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). Ensure adequate ventilation. Send for recovery or disposal in suitable receptacles.
- 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 disposal information.

7 Handling and storage

- Handling
  - Precautions for safe handling
    Keep receptacles tightly sealed.
  - 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: Store in a cool location.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions:
    Keep receptacle tightly sealed. Protect from exposure to the light. Store in cool, dry conditions in well sealed receptacles.
  - 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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Short-term value</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-64-1 acetone</td>
<td>500 ppm</td>
<td>250 ppm</td>
</tr>
<tr>
<td></td>
<td>750 ppm</td>
<td>500 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
  
  - Avoid contact with the eyes.
  
  - 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:
  
    - Use respiratory protective device 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.

  - Breathing equipment:
  
    - Use respiratory protective device 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.

  - 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: Tightly sealed goggles.

  - Body protection: Light weight protective clothing

9 Physical and chemical properties

- Information on basic physical and chemical properties

  - General Information

    - Appearance: Liquid
### 52.1.17

- **Color:** Clear
- **Odor:** Characteristic
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - Melting point/Melting range: Undetermined
  - Boiling point/Boiling range: Undetermined
- **Flash point:** -19 °C (-2.2 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Explosion limits:**
  - Lower: Not determined.
  - Upper: Not determined.
- **Vapor pressure:** Not determined.
- **Density at 20 °C (68 °F):** 0.99 g/cm³ (8.26155 lbs/gal)
  - Relative density: Not determined.
  - Vapor 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.
  - Kinematic: Not determined.
- **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:** -
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>67-64-1 acetone</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>5800 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>&gt;15800 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative LC50/4 h</td>
<td>76 mg/l (rat)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
</tr>
<tr>
<td>Dermal LD50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>70293-55-9 4-methacryloxyethyltrimellitic acid anhydride</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
</tr>
<tr>
<td>Dermal LD50</td>
</tr>
</tbody>
</table>

- Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: Irritating effect.
- Sensitization: Sensitization possible through skin contact.
- Additional toxicological information: 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.
  - Reproductive toxicity Based on available data, the classification criteria are not met.

12 Ecological information

- Toxicity

<table>
<thead>
<tr>
<th>67-64-1 acetone</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50/48h</td>
<td>8800 mg/l (daphnia)</td>
</tr>
<tr>
<td>LC50/96h</td>
<td>6210 mg/l (fish) (OECD 203)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>72869-86-4 7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate</th>
</tr>
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<tbody>
<tr>
<td>EC50/48h</td>
</tr>
<tr>
<td>LC50/96h</td>
</tr>
<tr>
<td>ErC50 / 72 h</td>
</tr>
<tr>
<td>NOEC / 72h</td>
</tr>
</tbody>
</table>
PERSISTENCE AND DEGRADABILITY

- **67-64-1 acetone**
  - Biodegradability: 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**
  - Biodegradability: 22% /28d (nd) (OECD 301B; ISO/9439; EEC 92/69/V, C.4-C)

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

**14 TRANSPORT INFORMATION**

- **UN-Number**
  - DOT/TDG, ADR, IMDG, IATA: UN1090

- **UN proper shipping name**
  - DOT/TDG, IMDG, IATA: ACETONE, mixture
  - ADR: 1090 ACETONE, mixture

- **Transport hazard class(es)**
  - **DOT/TDG (Transport dangerous goods):**
    - **Class**: 3 Flammable liquids
    - **Label**: 3

(Contd. on page 8)
Trade name: GLUMA Bond universal

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

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

- Packing group
  - DOT/TDG, ADR, IMDG, IATA II

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  - Warning: Flammable liquids
  - Hazard identification number (Kemler code): 33
  - EMS Number: F-E,S-D

- Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

- Transport/Additional information:
  - UN "Model Regulation": UN1090, Acetone mixture, 3, II

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.

- SARA
  - SARA Section 355 (extremely hazardous substances)
    - None of the ingredients is listed.

- 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.
  - H319 Causes serious eye irritation.
  - H336 May cause drowsiness or dizziness.
Date of the latest revision of the safety data sheet: 06/29/2021 / 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)
- 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.