1 Identification

· Product identifier
  · Trade name: GC Fuji ORTHO LC (Liquid)
    GC Fuji ORTHO LC CAPSULE (Liquid)

· Relevant identified uses of the substance or mixture and uses advised against
  Dental material
  The product is intended for professional use.
  To avoid risks for humans and environment obtain instructions.

· Application of the substance / the mixture
  Dental cement

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    GC America Inc.
    3737 W. 127th Street
    Alsip, IL 60803
    USA
    sds@gcamerica.com
  · Information department: Regulatory Affairs
  · Emergency telephone number:
    During normal opening times (Monday–Friday 8:00 AM–5:00 PM Central Time): +1 (708) 597-0900
    Transportation (CHEMTREC®) Emergency Telephone No. +1 (800) 424-9300

2 Hazard(s) identification

· Classification of the substance or mixture
  Skin Corr. 1A H314 Causes severe skin burns and eye damage.
  Eye Dam. 1 H318 Causes serious eye damage.
  Skin Sens. 1 H317 May cause an allergic skin reaction.

· Additional information:
  The information provided is in regards to the toxicity and hazard rating(s) of the individual component(s)
  in the formulation. The associated risk(s) depends on the route(s) of exposure. The hazard rating
  system is based entirely on the existence of the risk(s) and does not take into account the likelihood of
  reduced risk(s) through proper usage and handling.

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

[Images of hazard pictograms]

· Signal word Danger

· Hazard-determining components of labeling:
  2-hydroxyethyl methacrylate (HEMA)
  polybasic carboxylic acid**
  urethane dimethacrylate (UDMA)
Hazard statements
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Precautionary statements
Do not breathe dusts or mists.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.
Specific treatment (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard not otherwise classified (HNOC): Exothermic polymerization.

Additional information:
5 % of the mixture consists of component(s) of unknown toxicity.

Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixtures
Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>868-77-9</td>
<td>2-hydroxyethyl methacrylate (HEMA)</td>
<td>25 – 50%</td>
</tr>
<tr>
<td>9003-01-4</td>
<td>poly(acrylic acid)</td>
<td>10 – 25%</td>
</tr>
<tr>
<td></td>
<td>polybasic carboxylic acid**</td>
<td>5 – 10%</td>
</tr>
<tr>
<td>72869-86-4</td>
<td>urethane dimethacrylate (UDMA)</td>
<td>5 – 10%</td>
</tr>
<tr>
<td></td>
<td>dimethacrylate**</td>
<td>5 – 10%</td>
</tr>
</tbody>
</table>

Additional information:
If a substance is marked with **, then substance is a trade secret. This is allowed under OSHA’s Hazard Communication Standard (HCS) as a trade secret and under GHS as Confidential Business Information (CBI).

4 First-aid measures

Description of first aid measures

General information:
Immediately remove any clothing soiled by the product.
If symptoms persist consult doctor.

After inhalation:
Supply fresh air; consult doctor in case of complaints.
In case of unconsciousness place patient stably in side position for transportation.

After skin contact:
Immediately wash with water and soap and rinse thoroughly.
Seek medical treatment.

- **After eye contact:**
  - Protect unharmed eye.
  - Rinse opened eye for several minutes under running water.
  - Call a doctor immediately.

- **After swallowing:**
  - Rinse out mouth and then drink plenty of water.
  - If symptoms persist consult doctor.

- **Information for doctor:**
  - Most important symptoms and effects, both acute and delayed: Allergic reactions
  - 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, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:**
  - Water with full jet

- **Special hazards arising from the substance or mixture**
  - Formation of toxic gases is possible during heating or in case of fire.
  - No further relevant information available.

- **Advice for firefighters**
- **Protective equipment:**
  - Wear self-contained respiratory protective device.
- **Additional information**
  - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Remove persons from danger area.
  - Avoid contact with the eyes and skin.
  - Wear protective clothing.

- **Environmental precautions:**
  - Do not allow product to reach sewage system or any water course.
  - Do not allow to penetrate the ground/soil.

- **Methods and material for containment and cleaning up:**
  - Use neutralizing agent.
  - Absorb liquid components with liquid-binding material.
  - Dispose of the collected material according to regulations.

- **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.

- **Protective Action Criteria for Chemicals**
  - Protective Action Criterion (PAC); Protective Action Criteria (PACs); Lower Explosive Limit (LEL)
    - ** indicates the PAC value is between 10% and up to 50% of the LEL (10% LEL ≤ PAC < 50% LEL).
    - *** indicates the PAC value is at 100% or more of the LEL (PAC ≥ LEL).

  excerpt from Introduction to PAC Table 2 – PAC Rev. 29 – May 2016 (Contd. on page 4)
Trade name: GC Fuji ORTHO LC (Liquid)
GC Fuji ORTHO LC CAPSULE (Liquid)

(Contd. of page 3)

- PAC-1:
  - CAS: 868-77-9 2-hydroxyethyl methacrylate (HEMA) 1.9 mg/m³
  - polybasic carboxylic acid** 1.6 mg/m³
  - CAS: 72869-86-4 urethane dimethacrylate (UDMA) 120 mg/m³

- PAC-2:
  - CAS: 868-77-9 2-hydroxyethyl methacrylate (HEMA) 21 mg/m³
  - polybasic carboxylic acid** 17 mg/m³
  - CAS: 72869-86-4 urethane dimethacrylate (UDMA) 1,300 mg/m³

- PAC-3:
  - CAS: 868-77-9 2-hydroxyethyl methacrylate (HEMA) 1,000 mg/m³
  - polybasic carboxylic acid** 100 mg/m³
  - CAS: 72869-86-4 urethane dimethacrylate (UDMA) 7,900 mg/m³

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - Observe instructions for use.
    - Ensure good ventilation/exhaustion at the workplace.
    - Prevent formation of aerosols.
    - Avoid contact with the eyes and skin.
  - Information about protection against explosions and fires: No special measures required.

- Conditions for safe storage, including any incompatibilities

- Storage:
  - Requirements to be met by storerooms and receptacles:
    - Store only in unopened original receptacles.
  - Information about storage in one common storage facility: Store away from foodstuffs.
  - Further information about storage conditions:
    - Observe instructions for use / storage.
    - Keep receptacle tightly sealed.
  - 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:
    - The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
  - Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures:
      - The usual precautionary measures for handling chemicals should be followed.
      - Avoid contact with the eyes and skin.
Wash hands before breaks and at the end of work. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.

- **Breathing equipment:**
  
  Suitable respiratory protective device recommended.

- **Protection of hands:**
  
  Protective gloves

  **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.

- **Eye protection:**
  
  Safety glasses

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td>Form: Liquid</td>
</tr>
<tr>
<td>Color: Light yellow</td>
</tr>
<tr>
<td>Odor: Odorless</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td><strong>pH-value at 20 °C (68 °F):</strong> 1.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: Un determined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: Un determined.</td>
</tr>
</tbody>
</table>

| Flash point: |
| Not applicable. |

| Flammability (solid, gaseous): |
| Not applicable. |

| Ignition temperature: |
| Undetermined. |

| Decomposition temperature: |
| Not determined. |
50.0
· Auto igniting: Product is not self-igniting.
· Danger of explosion: Product does not present an explosion hazard.
· Explosion limits:
  Lower: Not determined.
  Upper: Not determined.
· Vapor pressure: Not determined.
· Density:
  Relative density: Not determined.
  Vapor density: Not determined.
  Evaporation rate: Not determined.
· Solubility in / Miscibility with Water: Insoluble.
· Partition coefficient (n-octanol/water): Not determined.
· Viscosity:
  Dynamic: Not determined.
  Kinematic: Not determined.
· Solvent content:
  Water: 24.8 %
  VOC content: 0.00 %
· Solids content: 50.0 %
· Other information: No further relevant information available.

10 Stability and reactivity
· Reactivity: No further relevant information available.
· Chemical stability: Stable at ambient temperature.
· Thermal decomposition / conditions to be avoided:
  No decomposition if used according to specifications.
· 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:
  Carbon dioxide
  Carbon monoxide

11 Toxicological information
· Information on toxicological effects
· Acute toxicity:
· LD/LC50 values that are relevant for classification: No further relevant information available.
· Primary irritant effect:
  · on the skin: Strong caustic effect on skin and mucous membranes.
Trade name: GC Fuji ORTHO LC (Liquid)
GC Fuji ORTHO LC CAPSULE (Liquid)

- on the eye:
  Strong caustic effect.
  Strong irritant with the danger of severe eye injury.
- Sensitization: Sensitization possible through skin contact.
- Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Corrosive

- Carcinogenic categories

  · IARC (International Agency for Research on Cancer)
    - poly(acrylic acid) 3
    - butylated hydroxytoluene 3

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

  · OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

- Carcinogenic categories' legend:
  IARC Group 1: The agent is carcinogenic to humans.
  IARC Group 2A: The agent is probably carcinogenic to humans.
  IARC Group 2B: The agent is possibly carcinogenic to humans.
  IARC Group 3: The agent is not classifiable as to its carcinogenicity to humans.
  IARC Group 4: The agent is probably not carcinogenic to humans.
  NTP K: Known to be human carcinogen.
  NTP R: Reasonably anticipated to be human carcinogen.

- Repeated dose toxicity: No further relevant information available.

- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)
  No further relevant information available.

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:
    Water hazard class 1 (German regulation, AwSV) (Self-assessment): slightly hazardous to water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
  · Results of PBT and vPvB assessment
    · PBT: Not applicable.
Trade name: GC Fuji ORTHO LC (Liquid)
GC Fuji ORTHO LC CAPSULE (Liquid)

13 Disposal considerations

· Waste treatment methods
  · Recommendation:
    Dispose of contents / container in accordance with local / regional / national / international regulations.

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

14 Transport information

· UN-Number
  · DOT, ADR, ADN, IMDG, IATA
    Not regulated.

· UN proper shipping name
  · DOT, ADR, ADN, IMDG, IATA
    Not regulated.

· Transport hazard class(es)
  · DOT, ADR, ADN, IMDG, IATA
    Class
    Not regulated.

· Packing group
  · DOT, ADR, IMDG, IATA
    Not regulated.

· Environmental hazards:
  · Marine pollutant:
    No

· Special precautions for user
  · Not applicable.

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

· UN "Model Regulation":
  · Not regulated.

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  · SARA (Superfund Amendments and Reauthorization Act)
    · Section 355 (extremely hazardous substances):
      None of the ingredients is listed.
    · Section 313 (Specific toxic chemical listings):
      None of the ingredients is listed.
  · TSCA (Toxic Substances Control Act):
    2-hydroxyethyl methacrylate (HEMA) ACTIVE
    poly(acrylic acid) ACTIVE
    polybasic carboxylic acid** ACTIVE
**Trade name:** GC Fuji ORTHO LC (Liquid)  
GC Fuji ORTHO LC CAPSULE (Liquid)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>urethane dimethacrylate (UDMA)</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>dimethacrylate**</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>water, distilled</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>

**Hazardous Air Pollutants**

None of the ingredients is listed.

**Proposition 65**

**Chemicals known to cause cancer:**

None of the ingredients is listed.

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

**Carcinogenic categories**

**EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**EPA carcinogenic categories' legend:**


- C: possible human carcinogen (1986)
- D: not classifiable as to human carcinogenicity (1986)
- E: evidence of non-carcinogenicity for humans (1986)
- CaH: carcinogenic to humans
- CBD: carcinogenic potential cannot be determined
- I: data are inadequate for an assessment of human carcinogenic potential
- II: inadequate information to assess carcinogenic potential
- K/L: known/likely human carcinogen
- L: likely to be carcinogenic to humans
- NL: not likely to be carcinogenic to humans
- S: suggestive evidence of carcinogenicity, but not sufficient to assess human carcinogenic potential
- SC: suggestive evidence of carcinogenic potential

**TLV (Threshold Limit Value established by ACGIH)**

butylated hydroxytoluene | A4

**ACGIH carcinogenic categories' legend:**

- A1: confirmed human carcinogen
- A2: suspected human carcinogen
- A3: confirmed animal carcinogen with unknown relevance to humans
- A4: not classifiable as a human carcinogen
- A5: not suspected as a human carcinogen

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

![Hazard pictogram]

· **Signal word** Danger

· **Hazard-determining components of labeling:**
  2-hydroxyethyl methacrylate (HEMA)
  polybasic carboxylic acid**
  urethane dimethacrylate (UDMA)

· **Hazard statements**
  Causes severe skin burns and eye damage.
  May cause an allergic skin reaction.

· **Precautionary statements**
  Do not breathe dusts or mists.
  Wear protective gloves/protective clothing/eye protection/face protection.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/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.
  Specific treatment (see on this label).
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**16 Other information**

· **Department issuing SDS:** Regulatory Affairs

· **Contact:**
  Regulatory Affairs
  Telephone No. +1 (708) 597-0900
  SDS.gcamerica@gc.dental

· **Date of preparation / last revision** 12/03/2019 / 1

· **Abbreviations and acronyms:**
  GHS: Globally Harmonized System of Classification and Labelling of Chemicals
  HCS: Hazard Communication Standard (USA)
  MSDS: Material Safety Data Sheet
  SDS: Safety Data Sheet
  ADN: Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
  ECHA: European Chemicals Agency
  OSHA: Occupational Safety and Health Administration (USA)
  PAC: Protective Action Criterion (USA)
  PACs: Protective Action Criteria (USA)
  HNOC: Hazard Not Otherwise Classified (USA)
  LEL: Lower Explosive Limit
  UEL: Upper Explosive Limit
  OSHA-Ca: Occupational Safety and Health Administration – Carcinogens or potential carcinogens regulated (USA)
  NIOSH-Ca: National Institute for Occupational Safety and Health – Carcinogen List (USA)
  NIOSH: National Institute for Occupational Safety and Health (USA)
  TSCA: Toxic Substances Control Act (USA)

(Contd. on page 11)
Trade name: GC Fuji ORTHO LC (Liquid)
GC Fuji ORTHO LC CAPSULE (Liquid)

AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances that are hazardous to water) (Germany)
NOEC: No Observed Effect Concentration
ADR: Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG Code: International Maritime Dangerous Goods Code
DOT: Department of Transportation (USA)
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1

Sources
• Manufacturers’ MSDS/SDSs
• OSHA (https://www.osha.gov/dts/chemicalsampling/toc/chmcas.html)
• TOXNET (http://toxnet.nlm.nih.gov/)
• ECHA (http://echa.europa.eu/)
• EnviChem (www.echemportal.org)

Notes:
CAS Registry Number® is a Registered Trademark of the American Chemical Society.
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