1 Identification

· **Product identifier**
  · **Trade name:** GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

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

· **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 (Mon.-Fri. 8:00 AM-5:00 PM CST): +1 (708) 597-0900
    Transportation (CHEMTREC®) Emergency Telephone No. +1 (800) 424-9300

2 Hazard identification

· **Classification of the substance or mixture**
  
  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.
  Aquatic Acute 3 H402 Harmful to aquatic life.
  Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

· **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**

  ! [GHS07](#)

· **Signal word** Warning

· **Hazard-determining components of labeling:**
  urethane dimethacrylate (UDMA)

· **Hazard statements**
  Causes skin irritation.
  Causes serious eye irritation.
  May cause an allergic skin reaction.
Trade name: GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

Harmful to aquatic life.
Harmful to aquatic life with long lasting effects.

Precautionary statements
Avoid breathing dust/fume/gas/mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information:
50 % of the mixture consists of an ingredient or ingredients of unknown acute toxicity.

Classification system:
NFPA ratings (scale 0 - 4)

- Health = 2
- Fire = 0
- Reactivity = 0

HMIS-ratings (scale 0 - 4)

- Health = 2
- Fire = 0
- Reactivity = 0

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: 72869-86-4</th>
<th>Chemical Name</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>urethane dimethacrylate (UDMA)</td>
<td>15 - 40% w/w</td>
<td></td>
</tr>
<tr>
<td>trimethacrylate**</td>
<td>10 - 30% w/w</td>
<td></td>
</tr>
<tr>
<td>dimethacrylate**</td>
<td>7 - 13% w/w</td>
<td></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.
Trade name: GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

Seek medical treatment.

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

- **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 Firefighting 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.

- **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 formation of dust.
  - Avoid contact with the eyes and skin.
  - Wear protective clothing.

- **Environmental precautions:**
  - Do not allow product to reach sewage system or any water course.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to penetrate the ground/soil.
  - In case of seepage into the ground inform responsible authorities.

- **Methods and material for containment and cleaning up:**
  - Pick up mechanically.
  - Prevent formation of dust.
  - 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.
7 Handling and storage

- Handling:
  - Precautions for safe handling
    Observe instructions for use.
    Prevent formation of dust.
    Any deposit of dust which cannot be avoided must be regularly removed.
    Avoid contact with the eyes and skin.
  - Information about protection against explosions and fires:
    Dust can combine with air to form an explosive mixture.

- 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:
  - General protective and hygienic measures:
    Observe instructions for use / storage.
  - 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.
    Do not inhale dust / smoke / mist.
    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:

- Protection of hands:

- 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
Trade name: GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Information on basic physical and chemical properties</td>
<td></td>
</tr>
<tr>
<td>· General Information</td>
<td></td>
</tr>
<tr>
<td>· Appearance:</td>
<td></td>
</tr>
<tr>
<td>Form:</td>
<td>Pasty</td>
</tr>
<tr>
<td>Color:</td>
<td>Different according to coloring</td>
</tr>
<tr>
<td>· Odor:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>· Odor threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· pH-value:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Change in condition</td>
<td></td>
</tr>
<tr>
<td>· Melting point/Melting range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>· Boiling point/Boiling range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>· Flash point:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Flammability (solid, gaseous):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Ignition temperature:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>· Decomposition temperature:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Auto igniting:</td>
<td>Product is not self-igniting.</td>
</tr>
<tr>
<td>· Danger of explosion:</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>· Explosion limits:</td>
<td></td>
</tr>
<tr>
<td>· Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Vapor pressure:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Vapor density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Evaporation rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Solubility in / Miscibility with Water:</td>
<td>Insoluble.</td>
</tr>
<tr>
<td>· Partition coefficient (n-octanol/water):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Viscosity:</td>
<td></td>
</tr>
<tr>
<td>· Dynamic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Kinematic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Solvent content:</td>
<td></td>
</tr>
<tr>
<td>· Solids content:</td>
<td>89.1 %</td>
</tr>
</tbody>
</table>
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: No dangerous decomposition products known.

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: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
  - Sensitization: Sensitization possible through skin contact.
- Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Irritant
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    | Chemical                  | Carcinogenic category |
    |--------------------------|-----------------------|
    | butylated hydroxytoluene  | 3                     |
    | titanium dioxide         | 2B                    |
- NTP (National Toxicology Program)
  None of the ingredients is listed.
12 Ecological information

· Toxicity
  · Aquatic toxicity:
    trimethacrylate**
    LC50/96h (dynamic) > 1 mg/L (Oncorhynchus mykiss) (OECD Guideline 203 (Fish, Acute Toxicity Test))
    Test organism: Rainbow trout (Oncorhynchus mykiss)

· 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.
· Ecotoxicological effects:
  · Remark: Harmful to fish
· Additional ecological information:
· General notes:
  Water hazard class 3 (Self-assessment): extremely hazardous for water
  Do not allow product to reach ground water, water course or sewage system, even in small quantities.
  Danger to drinking water if even extremely small quantities leak into the ground.
  Harmful to aquatic organisms
· 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:
    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, TDG, ADN, IMDG, IATA Void
· UN proper shipping name
  · DOT, TDG, ADN, IMDG, IATA Void
· Transport hazard class(es)
  · DOT, TDG, ADN, IMDG, IATA Void
  · Class Void
· Packing group
  · DOT, TDG, IMDG, IATA Void
46.1.5.2

· 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": Void

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):
      urethane dimethacrylate (UDMA)
      trimethacrylate**
      dimethacrylate**

· Canadian substance listings:
  · Canadian Domestic Substances List (DSL)
    trimethacrylate**
    silane**
    UV-light absorber**
    photoinitiator**
    initiator**
    butylated hydroxytoluene (BHT)
    titanium dioxide

· Canadian Ingredient Disclosure list (limit 0.1%)
  None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)
  None of the ingredients is listed.

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

· Hazard pictograms

GHS07

· Signal word Warning

(Contd. on page 9)
Trade name: GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

· **Hazard-determining components of labeling:**
  urethane dimethacrylate (UDMA)

· **Hazard statements**
  Causes skin irritation.
  Causes serious eye irritation.
  May cause an allergic skin reaction.
  Harmful to aquatic life.
  Harmful to aquatic life with long lasting effects.

· **Precautionary statements**
  Avoid breathing dust/fume/gas/mist/vapours/spray.
  Contaminated work clothing should not be allowed out of the workplace.
  Avoid release to the environment.
  Wear protective gloves/protective clothing/eye protection/face protection.
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

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

### 16 Other information

· **Department issuing SDS:** Regulatory Affairs

· **Contact:**
  Regulatory Affairs
  Telephone No. +1 (708) 597-0900
  sds@gcamerica.com

· **Date of preparation / last revision** 03/13/2018 / -

· **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)
  LEL: Lower Explosive Limit
  UEL: Upper Explosive Limit
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  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

· **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)
Trade name: GRADIA (Flowable Composites: F-T0, F-WE, and F-WT)

- **Notes:**
  CAS Registry Number is a Registered Trademark of the American Chemical Society.
  CHEMTREC® is a registered service mark of the American Chemistry Council, Inc.

- *Data compared to the previous version altered.* This version replaces all previous versions.

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