1 Identification

- **Product identifier**

- **Trade name:** G-ænial Flo (Shades: A1, A2, A3, A3.5, A4, AO2, AO3, and CV)

- **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 filling material

- **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(s) identification

- **Classification of the substance or mixture**
  - Acute Tox. 3 H311 Toxic in contact with skin.
  - Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - Acute Tox. 4 H302 Harmful if swallowed.
  - Skin Sens. 1 H317 May cause an allergic skin reaction.
  - 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**

  ![GHS06](image) ![GHS08](image)

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - ytterbium trifluoride

(Contd. on page 2)
Trade name: G-ænial Flo (Shades: A1, A2, A3, A3.5, A4, AO2, AO3, and CV)

(Contd. of page 1)

urethane dimethacrylate (UDMA)
stabilizer**
butylated hydroxytoluene (BHT)

· Hazard statements
Harmful if swallowed.
Toxic in contact with skin.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
Harmful to aquatic life with long lasting effects.

· Precautionary statements
Contaminated work clothing must not be allowed out of the workplace.
[In case of inadequate ventilation] wear respiratory protection.
Avoid breathing dust/fume/gas/mist/vapors/spray.
If experiencing respiratory symptoms: Call a poison center/doctor.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· Additional information:
16 % of the mixture consists of component(s) of unknown toxicity.

· Classification system:
· NFPA ratings (scale 0 - 4)

Health = 2
Fire = 1
Reactivity = 0

· HMIS-ratings (scale 0 - 4)

Health = 2
Fire = 1
Reactivity = 0

· 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>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>41637-38-1 ethoxylated bisphenol-A dimethacrylate (Bis-EMA)</td>
<td>10-20%</td>
</tr>
<tr>
<td>dimethacrylate**</td>
<td>5-10%</td>
</tr>
<tr>
<td>72869-86-4 urethane dimethacrylate (UDMA)</td>
<td>5-10%</td>
</tr>
<tr>
<td>128-37-0 butylated hydroxytoluene (BHT)</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>UV-light absorber**</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>stabilizer**</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>

(Contd. on page 3)
4 First-aid measures

- **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).

- **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.
    Do not use mouth to mouth or mouth to nose resuscitation.
  - **After skin contact:**
    Immediately wash with water and soap and rinse thoroughly.
    Seek medical treatment.
  - **After eye contact:**
    Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - **After swallowing:**
    Do not induce vomiting; immediately call for medical help.
    Rinse out mouth and then drink plenty of water.
  - **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.
- **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.
40.1.1 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:
Ensure adequate ventilation.
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.

7 Handling and storage

Handling:

Precautions for safe handling
Observe instructions for use.
Ensure good ventilation/exhaustion at the workplace.
Do not inhale dust / smoke / mist.
Prevent formation of aerosols.
Avoid contact with the eyes and skin.

Information about protection against explosions and fires: No special measures required.

Storage: Store only in the original receptacle.

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.

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
Trade name: G-ænial Flo (Shades: A1, A2, A3, A3.5, A4, AO2, AO3, and CV)

(Contd. of page 4)

- 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.
- Eye protection: Safety glasses

<table>
<thead>
<tr>
<th>9 Physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>· Information on basic physical and chemical properties</strong></td>
</tr>
<tr>
<td><strong>· General Information</strong></td>
</tr>
<tr>
<td><strong>· Appearance:</strong></td>
</tr>
<tr>
<td>Form: Pasty</td>
</tr>
<tr>
<td>Color: According to product specification</td>
</tr>
<tr>
<td><strong>· Odor:</strong></td>
</tr>
<tr>
<td>Odor: Characteristic</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td><strong>· pH-value:</strong></td>
</tr>
<tr>
<td>pH-value: Not determined.</td>
</tr>
<tr>
<td><strong>· Change in condition</strong></td>
</tr>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: Undetermined.</td>
</tr>
<tr>
<td><strong>· Flash point:</strong></td>
</tr>
<tr>
<td>Flash point: &gt; 150 °C (&gt; 302 °F)</td>
</tr>
<tr>
<td><strong>· Flammability (solid, gaseous):</strong></td>
</tr>
<tr>
<td>Flammability: Not applicable.</td>
</tr>
<tr>
<td><strong>· Ignition temperature:</strong></td>
</tr>
<tr>
<td>Ignition temperature: Undetermined.</td>
</tr>
<tr>
<td><strong>· Decomposition temperature:</strong></td>
</tr>
<tr>
<td>Decomposition temperature: Not determined.</td>
</tr>
<tr>
<td><strong>· Auto igniting:</strong></td>
</tr>
<tr>
<td>Auto igniting: Product is not selfigniting.</td>
</tr>
<tr>
<td><strong>· Danger of explosion:</strong></td>
</tr>
<tr>
<td>Danger of explosion: Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>· Explosion limits:</strong></td>
</tr>
<tr>
<td>Lower: Not determined.</td>
</tr>
<tr>
<td>Upper: Not determined.</td>
</tr>
<tr>
<td><strong>· Vapor pressure:</strong></td>
</tr>
<tr>
<td>Vapor pressure: Not determined.</td>
</tr>
<tr>
<td><strong>· Density:</strong></td>
</tr>
<tr>
<td>Density: Not determined.</td>
</tr>
<tr>
<td>Relative density: Not determined.</td>
</tr>
<tr>
<td>Vapour density: Not determined.</td>
</tr>
<tr>
<td>Evaporation rate: Not determined.</td>
</tr>
<tr>
<td><strong>· Solubility in / Miscibility with</strong></td>
</tr>
<tr>
<td>Water: Insoluble.</td>
</tr>
<tr>
<td><strong>· Partition coefficient (n-octanol/water):</strong> Not determined.</td>
</tr>
<tr>
<td><strong>· Viscosity:</strong></td>
</tr>
<tr>
<td>Dynamic: Not determined.</td>
</tr>
<tr>
<td>Kinematic: Not determined.</td>
</tr>
<tr>
<td><strong>· Solvent content:</strong></td>
</tr>
<tr>
<td>Organic solvents: 0.0 %</td>
</tr>
<tr>
<td>Solids content: 100.0 %</td>
</tr>
</tbody>
</table>

(Contd. on page 6)
## 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:**
    - **128-37-0 butylated hydroxytoluene (BHT)**
      - Oral LD50 10700 mg/kg (guinea pig)
      - 1040 mg/kg (mouse)
      - 2930 mg/kg (rat (f+m))
      - Dermal LD50 890 mg/kg (rat (f+m))
    - **Stabilizer**
      - Oral LD50 530 mg/kg (mouse)
      - 910 mg/kg (rat (f+m)) (OECD 401)
  - **Primary irritant effect:**
    - **on the skin:** No irritant effect.
    - **on the eye:** No irritating effect.
  - **Sensitization:**
    - Sensitization possible through inhalation.
    - Sensitization possible through skin contact.
  - **Experience with humans:**
    - May cause damage to kidneys.
    - May cause damage to liver.
  - **Additional toxicological information:**
  - **Carcinogenic categories**
    - **IARC (International Agency for Research on Cancer)**
      - ytterbium trifluoride 3
      - silicon dioxide, amorphous 3
      - butylated hydroxytoluene (BHT) 3
    - **NTP (National Toxicology Program)**
      - None of the ingredients is listed.
    - **OSHA-Ca (Occupational Safety & Health Administration)**
      - None of the ingredients is listed.
12 Ecological information

- Toxicity
  - Aquatic toxicity:
    - 128-37-0 butylated hydroxytoluene (BHT)
      - NOEC-value Ecol. other effects | 0.07 mg/l (daphnia magna)

- Persistence and degradability: No further relevant information available.
- Behavior in environmental systems:
- 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:
    - 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, ADR, ADN, IMDG, IATA: Void

(Contd. on page 8)
### 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 ingredient is listed.
    - **Section 313 (Specific toxic chemical listings):**
      - None of the ingredients is listed.
  - **TSCA (Toxic Substances Control Act):**
    - glass, oxide, chemicals
    - ethoxylated bisphenol-A dimethacrylate (Bis-EMA)
    - dimethacrylate**
    - ytterbium trifluoride
    - urethane dimethacrylate (UDMA)
    - silane**
    - butylated hydroxytoluene (BHT)
    - initiator**
    - dimethacrylate**
    - UV-light absorber**
    - stabilizer**
    - synergist**
- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - None of the ingredients is listed.
  - **TLV (Threshold Limit Value established by ACGIH)**
    - ytterbium trifluoride
Trade name: G-ænial Flo (Shades: A1, A2, A3, A3.5, A4, AO2, AO3, and CV)

· 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
  
  ![GHS06](Image)
  ![GHS08](Image)

· Signal word Danger

· Hazard-determining components of labeling:
  ytterbium trifluoride
  urethane dimethacrylate (UDMA)
  stabilizer**
  butylated hydroxytoluene (BHT)

· Hazard statements
  Harmful if swallowed.
  Toxic in contact with skin.
  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  May cause an allergic skin reaction.
  Harmful to aquatic life with long lasting effects.

· Precautionary statements
  Contaminated work clothing must not be allowed out of the workplace.
  [In case of inadequate ventilation] wear respiratory protection.
  Avoid breathing dust/fume/gas/mist/vapors/spray
  If experiencing respiratory symptoms: Call a poison center/doctor.
  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.

16 Other information

· Department issuing MSDS: Regulatory Affairs

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

· Date of preparation / last revision 02/24/2015 / -

· 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)
  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

(Contd. on page 10)
| Trade name: G-ænial Flo (Shades: A1, A2, A3, A3.5, A4, AO2, AO3, and CV) |
| DOT: US Department of Transportation |
| IATA: International Air Transport Association |
| ACGIH: American Conference of Governmental Industrial Hygienists |
| 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 |
| Acute Tox. 4: Acute toxicity, Hazard Category 4 |
| Acute Tox. 3: Acute toxicity, Hazard Category 3 |
| Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1 |
| Skin Sens. 1: Sensitisation - Skin, Hazard Category 1 |
| Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic Hazard, Category 3 |

**Sources**
- Manufacturers' MSDSs/SDSs
- 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.
- 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.

**Disclaimer:**
The information contained herein is believed to be true and accurate. However, all statements, recommendations or suggestions are made without any guarantee, representation or warranty, express or implied, on our part. Therefore, no warranty is made or to be implied that the information set out in this document is accurate or complete, and we accordingly exclude all liability in connection with the use of this information or the products referred to herein. All such risks are assumed by the purchaser/user. The information contained herein is also subject to change without notice. For the avoidance of doubt, however, nothing in this document excludes or limits our liability for death or personal injury caused by our negligence or for fraudulent misrepresentation.