



## Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 09/19/2017

Version US-EN-Rev 1

Reviewed on 09/19/2017

### 1 Identification

- **Product identifier**

- **Trade name:** GRADIA PLUS OPAQUE

- **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** 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(s) identification

- **Classification of the substance or mixture**

Skin Sens. 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)

dimethacrylate component\*\*

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- **Hazard statements**

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/vapors/spray  
Contaminated work clothing must not be allowed out of the workplace.  
Avoid release to the environment.  
Wear protective gloves.  
Wash contaminated clothing before reuse.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Hazard not otherwise classified (HNOC):**

- **Additional information:**

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

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 1  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 1  
Fire = 0  
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:**

|                 |                                |          |
|-----------------|--------------------------------|----------|
| CAS: 72869-86-4 | urethane dimethacrylate (UDMA) | 25 - 50% |
|                 | dimethacrylate component**     | 5 - 10%  |
|                 | dimethacrylate**               | 1 - 5%   |
|                 | trimethacrylate**              | 1 - 5%   |
|                 | UV-light absorber**            | 1 - 5%   |

- **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).

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### 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:**  
Rinse opened eye for several minutes under running water. If symptoms persist, 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 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, 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.  
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:**  
Absorb liquid components with liquid-binding material.  
Dispose of the collected material according to regulations.

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- **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 ( $10\% \text{ LEL} \leq \text{PAC} < 50\% \text{ LEL}$ ).

\*\* indicates the PAC value is between 50% and up to 100% of the LEL ( $50\% \text{ LEL} \leq \text{PAC} < 100\% \text{ LEL}$ ).

\*\*\* indicates the PAC value is at 100% or more of the LEL ( $\text{PAC} \geq \text{LEL}$ ).

excerpt from Introduction to PAC Table 2 – PAC Rev. 29 – May 2016

- **PAC-1:**

|                  |                                |                       |
|------------------|--------------------------------|-----------------------|
| CAS: 72869-86-4  | urethane dimethacrylate (UDMA) | 120 mg/m <sup>3</sup> |
| CAS: 112945-52-5 | silicon dioxide, amorphous     | 18 mg/m <sup>3</sup>  |
|                  | dimethacrylate component**     | 33 mg/m <sup>3</sup>  |
|                  | initiator**                    | 4.1 mg/m <sup>3</sup> |
|                  | silane**                       | 71 mg/m <sup>3</sup>  |

- **PAC-2:**

|                  |                                |                         |
|------------------|--------------------------------|-------------------------|
| CAS: 72869-86-4  | urethane dimethacrylate (UDMA) | 1,300 mg/m <sup>3</sup> |
| CAS: 112945-52-5 | silicon dioxide, amorphous     | 100 mg/m <sup>3</sup>   |
|                  | dimethacrylate component**     | 360 mg/m <sup>3</sup>   |
|                  | initiator**                    | 45 mg/m <sup>3</sup>    |
|                  | silane**                       | 780 mg/m <sup>3</sup>   |

- **PAC-3:**

|                  |                                |                         |
|------------------|--------------------------------|-------------------------|
| CAS: 72869-86-4  | urethane dimethacrylate (UDMA) | 7,900 mg/m <sup>3</sup> |
| CAS: 112945-52-5 | silicon dioxide, amorphous     | 630 mg/m <sup>3</sup>   |
|                  | dimethacrylate component**     | 2,100 mg/m <sup>3</sup> |
|                  | initiator**                    | 130 mg/m <sup>3</sup>   |
|                  | silane**                       | 4,700 mg/m <sup>3</sup> |

## 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.

- **Specific end use(s)** No further relevant information available.

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### 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 following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.  
At this time, the other constituents have no known exposure limits.

#### trimethacrylate\*\*

|      |                                              |
|------|----------------------------------------------|
| WEEL | Long-term value: 1 mg/m <sup>3</sup><br>Skin |
|------|----------------------------------------------|

- **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

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

|        |                                    |
|--------|------------------------------------|
| Form:  | Fluid                              |
| Color: | According to product specification |
| Odor:  | Odorless                           |

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|                                                                                                                       |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| · <b>Odor threshold:</b>                                                                                              | Not determined.                                                                        |
| · <b>pH-value:</b>                                                                                                    | Not determined.                                                                        |
| · <b>Change in condition</b><br><b>Melting point/Melting range:</b><br><b>Boiling point/Boiling range:</b>            | Undetermined.<br>Undetermined.                                                         |
| · <b>Flash point:</b>                                                                                                 | Not applicable.                                                                        |
| · <b>Flammability (solid, gaseous):</b>                                                                               | Not applicable.                                                                        |
| · <b>Ignition temperature:</b>                                                                                        | Undetermined.                                                                          |
| · <b>Decomposition temperature:</b>                                                                                   | Not determined.                                                                        |
| · <b>Auto igniting:</b>                                                                                               | Product is not self-igniting.                                                          |
| · <b>Danger of explosion:</b>                                                                                         | Product does not present an explosion hazard.                                          |
| · <b>Explosion limits:</b><br><b>Lower:</b><br><b>Upper:</b>                                                          | Not determined.<br>Not determined.                                                     |
| · <b>Vapor pressure:</b>                                                                                              | Not determined.                                                                        |
| · <b>Density at 20°C (68 °F):</b><br>· <b>Relative density</b><br>· <b>Vapor density</b><br>· <b>Evaporation rate</b> | 2 g/cm <sup>3</sup> (lbs/gal)<br>Not determined.<br>Not determined.<br>Not determined. |
| · <b>Solubility in / Miscibility with Water:</b>                                                                      | Insoluble.                                                                             |
| · <b>Partition coefficient (n-octanol/water):</b>                                                                     | Not determined.                                                                        |
| · <b>Viscosity:</b><br><b>Dynamic:</b><br><b>Kinematic:</b>                                                           | Not determined.<br>Not determined.                                                     |
| · <b>Solvent content:</b><br><b>VOC content:</b>                                                                      | 0.00 %                                                                                 |
| <b>Solids content:</b><br>· <b>Other information</b>                                                                  | 80.0 %<br>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:** No dangerous decomposition products known.

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## 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:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** Sensitization possible through skin contact.

- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

|                                |   |
|--------------------------------|---|
| 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.

- **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.

No further relevant information available.

## 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

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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

- **UN proper shipping name**

- **DOT, ADR, ADN, IMDG, IATA** Void

- **Transport hazard class(es)**

- **DOT, ADR, ADN, IMDG, IATA**

- **Class** Void

- **Packing group**

- **DOT, ADR, IMDG, IATA** Void

- **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.

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- **TSCA (Toxic Substances Control Act):**

urethane dimethacrylate (UDMA)

dimethacrylate component\*\*

dimethacrylate\*\*

trimethacrylate\*\*

Polyethylmethacrylate

UV-light absorber\*\*

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

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

butylated hydroxytoluene (BHT)

A4

- **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**



GHS07

- **Signal word** Warning

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

urethane dimethacrylate (UDMA)

dimethacrylate component\*\*

- **Hazard statements**

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/vapors/spray

Contaminated work clothing must not be allowed out of the workplace.

Avoid release to the environment.

Wear protective gloves.

Wash contaminated clothing before reuse.

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

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• **Date of preparation / last revision** 09/19/2017 / -

• **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

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

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)

HMS: Hazardous Materials Identification System (USA)

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

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Sens. 1: Skin sensitisation – Category 1

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

• **Sources**

• Manufacturers' MSDSs/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](http://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.

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