



# Safety Data Sheet

## according to HPR, Schedule 1

Printing date 03/13/2018

Version CA-EN-Rev 1

Reviewed on 01/09/2018

### 1 Identification

- **Product identifier**
- **Trade name:** G-ænial™ Bond
- **Application of the substance / the mixture** Dental bonding 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 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.
Reproductive Toxicity - Category 2	H361	Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity - Single Exposure - Category 3	H335-H336	May cause respiratory irritation. May cause drowsiness or dizziness.
Specific Target Organ Toxicity - Repeated Exposure - Category 1	H372	Causes damage to organs through prolonged or repeated exposure.
Aspiration Hazard - Category 1	H304	May be fatal if swallowed and enters airways.
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**

Exempt from requirements - product regulated as a medical device or an in vitro diagnostic medical device.

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

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- **Hazard pictograms**



GHS02 GHS07 GHS08

- **Signal word** Danger

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

acetone  
 dimethacrylate component\*\*  
 photoinitiator\*\*  
 dimethacrylate\*\*

- **Hazard statements**

Highly flammable liquid and vapour.  
 Causes skin irritation.  
 Causes serious eye irritation.  
 May cause an allergic skin reaction.  
 Suspected of damaging fertility or the unborn child.  
 May cause respiratory irritation. May cause drowsiness or dizziness.  
 Causes damage to organs through prolonged or repeated exposure.  
 May be fatal if swallowed and enters airways.  
 Harmful to aquatic life.  
 Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 Do not breathe dust/fume/gas/mist/vapours/spray.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 If swallowed: Immediately call a poison center/doctor.  
 Do NOT induce vomiting.  
 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.  
 IF exposed or concerned: Get medical advice/attention.  
 Specific treatment (see on this label).  
 Take off contaminated clothing and wash it before reuse.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Additional information:**

32 % of the mixture consists of an ingredient or ingredients of unknown acute toxicity.

- **Classification system:**

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



Health = 2  
 Fire = 3  
 Reactivity = 0

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



HEALTH 2 Health = 2  
 FIRE 3 Fire = 3  
 REACTIVITY 0 Reactivity = 0

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### 3 Composition/Information on ingredients

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

- **Dangerous components:**

CAS: 67-64-1	acetone	15 - 40% w/w
	dimethacrylate**	10 - 30% w/w
	phosphoric acid ester monomer**	3 - 7% w/w
	dimethacrylate component**	1 - 5% w/w
	photoinitiator**	1 - 5% w/w
CAS: 128-37-0	butylated hydroxytoluene (BHT)	≤ 1% w/w

- **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.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.  
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. 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:**  
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

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- **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:**  
Mouth respiratory protective device.  
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.  
Keep away from ignition sources  
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:**  
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:**  
Keep ignition sources away - Do not smoke.  
Protect from heat.  
Protect against electrostatic charges.  
Do not spray on a naked flame or any incandescent material.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store in a cool location.  
Store only in unopened original receptacles.
- **Information about storage in one common storage facility:** Store away from foodstuffs.

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- **Further information about storage conditions:**  
Observe instructions for use / storage.  
Keep receptacle tightly sealed.  
Store in cool, dry conditions in well sealed receptacles.  
Protect from heat and direct sunlight.  
Store in a cool place.
- **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:**

##### **CAS: 67-64-1 acetone**

EL	Short-term value: 500 ppm Long-term value: 250 ppm
EV	Short-term value: 750 ppm Long-term value: 500 ppm

- **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:**

Manufacturing sites:

Wear safety glasses with side shields (or goggles).

Distribution, Workplace, and Household Settings:

No special protective equipment required

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### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Fluid
Color:	Light yellow
Odor:	Ester-like
Odor threshold:	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range:	-95 °C
Boiling point/Boiling range:	56 °C

- **Flash point:** -16 °C

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** Undetermined.

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not self-igniting.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits:**

Lower:	2.6 Vol %
Upper:	13 Vol %

- **Vapor pressure:** Not determined.

- **Density:** Not determined.

- **Relative density** Not determined.

- **Vapor density** Not determined.

- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

- **Water:** Fully miscible.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

Dynamic:	Not determined.
Kinematic:	Not determined.

- **Solvent content:**

Organic solvents:	37.9 %
Water:	19.4 %

- **Solids content:** 44.0 %

- **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.

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- **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:**

**CAS: 128-37-0 butylated hydroxytoluene (BHT)**

Oral	LD50	10,700 mg/kg (guinea pig)
		1,040 mg/kg (mouse)
		2,930 mg/kg (rat (f+m))
Dermal	LD50	890 mg/kg (rat (f+m))

- **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)**

butylated hydroxytoluene (BHT)

3

- **NTP (National Toxicology Program)**

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.

Reproductive Toxicity - Category 2

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### 12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

**CAS: 128-37-0 butylated hydroxytoluene (BHT)**

NOEC-value Ecol. other effects	0.07 mg/l (daphnia magna) 21 day, reproductive effects
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- **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.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**

- **DOT, TDG, IMDG, IATA**

UN1090

- **UN proper shipping name**

- **DOT**

Acetone solution

- **TDG**

1090 Acetone solution

- **IMDG, IATA**

ACETONE solution

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- **Transport hazard class(es)**

- **DOT**



- **Class** 3 Flammable liquids

- **Label** 3

- **TDG (Transport dangerous goods):**



- **Class** 3 (F1) Flammable liquids

- **Label** 3

- **IMDG, IATA**



- **Class** 3 Flammable liquids

- **Label** 3

- **Packing group**

- **DOT, TDG, IMDG, IATA** II

- **Environmental hazards:**

- **Marine pollutant:** No

- **Special precautions for user** Warning: Flammable liquids

- **Danger code (Kemler):** 33

- **EMS Number:** F-E,S-D

- **Stowage Category** E

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

- **Transport/Additional information:**

- **TDG**

- **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

- **IMDG**

- **Limited quantities (LQ)** 1L

- **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

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<b>UN "Model Regulation":</b>	UN 1090 ACETONE SOLUTION, 3, II
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### 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- SARA (Superfund Amendments and Reauthorization Act)

<b>Section 355 (extremely hazardous substances):</b>
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None of the ingredients is listed.
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<b>Section 313 (Specific toxic chemical listings):</b>
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aluminium oxide
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<b>TSCA (Toxic Substances Control Act):</b>
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acetone
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dimethacrylate**
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dimethacrylate component**
----------------------------

surface-treated silica**
--------------------------

photoinitiator**
------------------

aluminium oxide
-----------------

butylated hydroxytoluene (BHT)
--------------------------------

synergist**
-------------

water, distilled
------------------

- Canadian substance listings:

<b>Canadian Domestic Substances List (DSL)</b>
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acetone
---------

dimethacrylate component**
----------------------------

surface-treated silica**
--------------------------

photoinitiator**
------------------

aluminium oxide
-----------------

photoinitiator**
------------------

butylated hydroxytoluene (BHT)
--------------------------------

synergist**
-------------

water, distilled
------------------

<b>Canadian Ingredient Disclosure list (limit 0.1%)</b>
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None of the ingredients is listed.
------------------------------------

<b>Canadian Ingredient Disclosure list (limit 1%)</b>
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acetone
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dimethacrylate component**
----------------------------

aluminium oxide
-----------------

- GHS label elements

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

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- **Hazard pictograms**



GHS02 GHS07 GHS08

- **Signal word** Danger

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

acetone  
dimethacrylate component\*\*  
photoinitiator\*\*  
dimethacrylate\*\*

- **Hazard statements**

Highly flammable liquid and vapour.  
Causes skin irritation.  
Causes serious eye irritation.  
May cause an allergic skin reaction.  
Suspected of damaging fertility or the unborn child.  
May cause respiratory irritation. May cause drowsiness or dizziness.  
Causes damage to organs through prolonged or repeated exposure.  
May be fatal if swallowed and enters airways.  
Harmful to aquatic life.  
Harmful to aquatic life with long lasting effects.

- **Precautionary statements**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Do not breathe dust/fume/gas/mist/vapours/spray.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If swallowed: Immediately call a poison center/doctor.  
Do NOT induce vomiting.  
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.  
IF exposed or concerned: Get medical advice/attention.  
Specific treatment (see on this label).  
Take off contaminated clothing and wash it before reuse.  
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 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

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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' 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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