

Printing date 11/20/2020

Version US-EN-Rev 1

Reviewed on 11/20/2020

1 Identification

- · Product identifier
- Trade name: G2-BOND Universal (2-BOND)
- 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 Adhesives
- Details of the supplier of the safety data sheet
- · Manufacturer/Supplier:

GC America Inc. 3737 W. 127th Street Alsip, IL 60803 USA

SDS.gcamerica@gc.dental

- · 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 Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Repr. 1B H360 May damage fertility or the unborn child.

STOT SE 3 H335 May cause respiratory irritation.

· 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 labeling – medical devices and drugs do not require labeling according to HCS 2012. The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms





- · Signal word Danger
- Hazard-determining components of labeling: urethane dimethacrylate (UDMA)

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dimethacrylate** synergist** photoinitiator**

· Hazard statements

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

May damage fertility or the unborn child.

May cause respiratory irritation.

Precautionary statements

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.

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.

- · Hazard(s) not otherwise classified (HNOC): None known.
- · Additional information:

49 % 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:		
	dimethacrylate**	25 – < 50%
CAS: 72869-86-4	urethane dimethacrylate (UDMA)	25 – < 50%
	photoinitiator**	2.5 – < 5%
	synergist**	1 – < 2.5%
CAS: 128-37-0	butylated hydroxytoluene	1 – < 2.5%

· Additional information:

Concentrations of dangerous components are expressed in percent by weight (% w/w).

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.

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· 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 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

In case of fire, the following can be released:

Carbon monoxide (CO)

Nitrogen oxides (NOx)

Carbon dioxide

- · 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.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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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 between 50% and up to 100% of the LEL (50% LEL ≤ PAC < 100% 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

· PAC-1:	
CAS: 72869-86-4 urethane dimethacrylate (UDMA)	120 mg/m³
· PAC-2:	
CAS: 72869-86-4 urethane dimethacrylate (UDMA)	1,300 mg/m ³
· PAC-3:	
CAS: 72869-86-4 urethane dimethacrylate (UDMA)	7,900 mg/m³

7 Handling and storage

- · Handling:
- · Precautions for safe handling

Avoid contact with the eyes and skin.

Ensure good ventilation/exhaustion at the workplace.

Observe instructions for use.

Prevent formation of aerosols.

Use caution when opening. The product is a highly flammable liquid and vapor; keep away from heat, hot surfaces, sparks, flames and other ignitions sources. Use with adequate ventilation. Do not ingest or breathe vapor. Personal Protective Equipment (PPE) such as gloves and safety eyewear are always to be worn. Check bottle with liquid before using. Make sure that upon removal of cap, the bottle opening has no obstructions. Some bottles may contain an insert (as a seal). The insert must be in the cap and not obstructing opening.

In case of contact, flush eyes with water for at least 15 minutes. Get prompt medical attention. If overcome by vapor, move to fresh air. If breathing is difficult, administer oxygen and seek medical attention. If swallowed, dilute by giving water to drink and seek medical attention. In case of contact with skin wash thoroughly with soap and water. Store securely. Store in a well ventilated place. Keep cool. Dispose of all waste according to local regulations.

- 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:

Keep receptacle tightly sealed.

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.

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· 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

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

· Form: Liquid

Color: Yellow opaque
Refractive index: 1.4905 – 1.4935
Odor: Characteristic
Odor threshold: Not determined.

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pH-value:	Not determined.	
Change in condition		
Melting point/Melting range:	Undetermined.	
Boiling point/Boiling range:	283 °C (541.4 °F)	
Flash point:	> 100 °C (> 212 °F)	
Flammability (solid, gaseous):	Not applicable.	
Ignition temperature:	Undetermined.	
Decomposition temperature:	Not determined.	
Auto igniting:	Product is not self-igniting.	
Danger of explosion:	Not determined.	
Explosion limits:		
Lower:	Not determined.	
Upper:	Not determined.	
Vapor pressure:	Not determined.	
Density:	Not determined.	
Relative density	Not determined.	
Vapor density	Not determined.	
Evaporation rate	Not determined.	
Solubility in / Miscibility with		
Water:	Insoluble.	
Partition coefficient (n-octanol/wa	ater): Not determined.	
Viscosity:		
Dynamic:	Not determined.	
Kinematic:	Not determined.	
Solvent content:		
VOC content:	0.00 %	
Solids content:	12.0 %	
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

Reacts with reducing agents.

Reacts with alkali (lyes).

Reacts with acids.

Reacts with oxidizing agents.

- · Conditions to avoid No further relevant information available.
- · Incompatible materials: Reacts with alkali (lyes).

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· Hazardous decomposition products:

Carbon dioxide Carbon monoxide

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50 values that are relevant for classification:

CAS: 128-37-0 butylated hydroxytoluene

Oral LD50 10,700 mg/kg (guinea pig) 1,040 mg/kg (mouse) > 2,930 mg/kg (rat (f+m)) Dermal LD50 > 2,000 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.
- Symptoms related to the physical, chemical and toxicological characteristics: Allergic reactions
- · Subacute to chronic toxicity: No further relevant information available.
- · Numerical measures of toxicity:

ATEmix (Oral) = 104,000 mg/kg bodyweight, where ATEmix is the acute toxicity estimate of the mixture ATEmix (Dermal) = >200,000 mg/kg bodyweight, where ATEmix is the acute toxicity estimate of the mixture

· 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

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· 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.

Repr. 1B

· Reproductive toxicity No further relevant information available.

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· Specific target organ toxicity - single exposure No further relevant information available.

12 Ecological information

- · Toxicity
- · Aquatic toxicity:

CAS: 128-37-0 butylated hydroxytoluene

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

- 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.
- · Ecotoxical effects:
- · Remark: Harmful to fish
- · Additional ecological information:
- · General notes:

Water hazard class 2 (German regulation, AwSV) (Self-assessment): clearly hazardous to water Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even 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.

· UN-Number		
· DOT, ADR, IMDG, IATA	Not regulated.	
· UN proper shipping name		
DOT, ADR, IMDG, IATA	Not regulated.	
Transport hazard class(es)		
DOT, ADR, ADN, IMDG, IATA		
Class	Not regulated.	
· Packing group		
· DOT, ADR, IMDG, IATA	Not regulated.	

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· Environmental hazards:	Not applicable.	
· 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):

All components have the value ACTIVE.

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).

- · 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:

EPA weight-of-evidence (WoE): official codes and categories from EPA's 1986 guidelines and unofficial, derived codes from EPA's standard hazard descriptors from 1996, 1999, and 2005 guidelines A: human carcinogen (1986)

B1: probable human carcinogen - based on limited evidence of carcinogenicity in humans (1986)

B2: probable human carcinogen – based on sufficient evidence of carcinogenicity in animals (1986)

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

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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

Α4

· 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

Exempt from labeling – medical devices and drugs do not require labeling according to HCS 2012. The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms





· Signal word Danger

· Hazard-determining components of labeling:

urethane dimethacrylate (UDMA) dimethacrylate** synergist** photoinitiator**

Hazard statements

Causes skin irritation.

Causes serious eve irritation.

May cause an allergic skin reaction.

May damage fertility or the unborn child.

May cause respiratory irritation.

· Precautionary statements

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.

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.

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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 11/20/2020 / -

· 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)

AwSV: Verordnung über Anlagen zum Úmgang 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 Irrit. 2: Skin corrosion/irritation - Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation - Category 2A

Skin Sens. 1: Skin sensitisation – Category 1

Repr. 1B: Reproductive toxicity - Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) - Category 3

· Sources

- Manufacturers' MSDSs/SDSs
- OSHA (https://www.osha.gov/dts/chemicalsampling/toc/chmcas.html)
- PubChem (https://pubchem.ncbi.nlm.nih.gov/)
- ECHA (http://echa.europa.eu/)
- EnviChem (www.echemportal.org)

· Notes:

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· 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

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