SAFETY DATA SHEETS

This SDS packet was issued with item:

071313758

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

071313790

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

071424860

Safety Data Sheet
acc. to OSHA HCS 29 CFR 1910.1200

Printing date 10/17/2019 Version US-EN-Rev 2 Reviewed on 10/17/2019

*
1 Identification

· **Product identifier**

· **Trade name:** G-Multi PRIMER

· **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** Auxiliary for dental technology

· **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

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2 Hazard(s) identification

· **Classification of the substance or mixture**
Flam. Liq. 2 H225 Highly flammable liquid and vapor.
Skin Sens. 1 H317 May cause an allergic skin reaction.

· **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:**
dimethacrylate component**
· **Hazard statements**
Highly flammable liquid and vapor.
May cause an allergic skin reaction.

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· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Hazard not otherwise classified (HNOC):** None known.

· **Additional information:**
2 % of the mixture consists of component(s) of unknown toxicity.

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

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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: 64-17-5	ethyl alcohol	75 – < 100%
	phosphoric acid ester monomer**	1 – < 2.5%
	dimethacrylate component**	1 – < 2.5%

· **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

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· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

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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.
No further relevant information available.
· **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.

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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.
Do not allow to penetrate the ground/soil.
· **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.
· **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: 64-17-5	ethyl alcohol	1,800 ppm
	silane**	71 mg/m³
	dimethacrylate component**	33 mg/m³

· **PAC-2:**		
CAS: 64-17-5	ethyl alcohol	3300* ppm
	silane**	780 mg/m³

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	dimethacrylate component**	360 mg/m³

· **PAC-3:**		
CAS: 64-17-5	ethyl alcohol	15000* ppm
	silane**	4,700 mg/m³
	dimethacrylate component**	2,100 mg/m³

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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.

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:**
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.
· **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.

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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 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.

CAS: 64-17-5 ethyl alcohol	
PEL	Long-term value: 1900 mg/m³, 1000 ppm
REL	Long-term value: 1900 mg/m³, 1000 ppm
TLV	Short-term value: 1880 mg/m³, 1000 ppm

· **Regulatory information**
PEL: Guide to Occupational Exposure Values (OSHA PELs)
REL: Guide to Occupational Exposure Values (NIOSH RELs)
TLV: Guide to Occupational Exposure Values (ACGIH)
· **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.
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

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Colorless
· **Odor:**	Alcohol-like
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	78 °C (172.4 °F)
· **Flash point:**	13 °C (55.4 °F)
· **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:	3.5 Vol %
Upper:	15 Vol %
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.8 g/cm³ (6.68 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	92.0 %
VOC content:	92.02 %
Solids content:	0.0 %
· **Other information**	No further relevant information available.

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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:**
Carbon dioxide
Carbon monoxide

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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)**	
ethyl alcohol	1

· **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.
· **Additional carcinogenic information:**
The substance, ethyl alcohol, also known as ethanol, is listed by IARC as a Group 1 carcinogen but in alcoholic beverage consumption. IARC Volume 100E (2012) "Personal Habits and Indoor Combustions" stated in its monograph “Consumption of Alcoholic Beverages” the following evaluation: “Ethanol in alcoholic beverages is carcinogenic to humans (Group 1).” GC products are not consumable alcoholic beverages.
· **Repeated dose toxicity.** No further relevant information available.
· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
No further relevant information available.

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12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **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.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German regulation, AwSV) (Self-assessment): slightly hazardous to water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **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.

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14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1170
· **UN proper shipping name**	
· **DOT**	Ethanol solutions
· **ADR**	1170 ETHANOL SOLUTION
· **IMDG, IATA**	ETHANOL SOLUTION
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	3 Flammable liquids

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Trade name: G-Multi PRIMER

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· **Label**	3
· **ADR**	
	
· **Class**	3 (F1) Flammable liquids
· **Label**	3
· **IMDG, IATA**	
	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	30
· **EMS Number:**	F-E,S-D
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **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
· **UN "Model Regulation":**	UN 1170 ETHANOL SOLUTION, 3, II

*
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.

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· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

ethyl alcohol	ACTIVE
silane**	ACTIVE
dimethacrylate component**	ACTIVE
methacrylate**	ACTIVE

· **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:**
The substance ethyl alcohol, also known as ethanol, is on California's Proposition 65 list of "Chemicals Known to the State To Cause Cancer or Reproductive Toxicity" as a developmental toxicant but as "ethyl alcohol in alcoholic beverages." GC products are not consumable alcoholic beverages.

ethyl alcohol

· **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
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)**

ethyl alcohol	A3

· **ACGIH carcinogenic categories' legend:**
A1: confirmed human carcinogen
A2: suspected human carcinogen
A3: confirmed animal carcinogen with unknown relevance to humans

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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:**
dimethacrylate component**

· **Hazard statements**
Highly flammable liquid and vapor.
May cause an allergic skin reaction.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Store in a well-ventilated place. Keep cool.
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@gc.dental
· **Date of preparation / last revision** 10/17/2019 / 1
· **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
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 Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances that are hazardous to water) (Germany)

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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
Flam. Liq. 2: Flammable liquids – Category 2
Skin Sens. 1: Skin sensitisation – Category 1

· **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)

· **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:**
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Safety Data Sheet
acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/07/2021 Version US-EN-Rev 1 Reviewed on 02/07/2021

1 Identification

· **Product identifier**

· **Trade name:** G-CEM ONE™ (Paste A, Shades: A2, AO3, BO1, Translucent, and White 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** Dental cement

· **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.

· **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.

Avoid use of this product in patients with known allergies to methacrylate monomer or methacrylate polymer.

· **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

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Safety Data Sheet
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Trade name: G-CEM ONE™ (Paste A, Shades: A2, AO3, BO1, Translucent, and White opaque)

(Contd. of page 1)

· **Hazard-determining components of labeling:**
urethane dimethacrylate (UDMA)
synergist**
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.
· **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:**
20.4 % 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**	10 – < 25%
CAS: 72869-86-4	urethane dimethacrylate (UDMA)	10 – < 25%
CAS: 13463-67-7	titanium dioxide	1 – < 2.5%
	monomer**	0.2 – < 0.5%
	synergist**	0.2 – < 0.5%
	photoinitiator**	0.2 – < 0.5%
	stabilizer**	0.1 – < 0.2%
	initiator**	0.1 – < 0.2%

· **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).

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Trade name: G-CEM ONE™ (Paste A, Shades: A2, AO3, BO1, Translucent, and White opaque)

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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:**
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, sand, extinguishing powder. Do not use water.
· **For safety reasons unsuitable extinguishing agents:** Water
· **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.
Do not allow to penetrate the ground/soil.
· **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% 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: 65997-17-3	glass, oxide, chemicals	15 mg/m³
CAS: 72869-86-4	urethane dimethacrylate (UDMA)	120 mg/m³
	silane**	71 mg/m³
CAS: 13463-67-7	titanium dioxide	30 mg/m³
	colorant**	15 mg/m³
CAS: 20344-49-4	iron hydroxide oxide	24 mg/m³

· **PAC-2:**		
CAS: 65997-17-3	glass, oxide, chemicals	170 mg/m³
CAS: 72869-86-4	urethane dimethacrylate (UDMA)	1,300 mg/m³
	silane**	780 mg/m³
CAS: 13463-67-7	titanium dioxide	330 mg/m³
	colorant**	360 mg/m³
CAS: 20344-49-4	iron hydroxide oxide	260 mg/m³

· **PAC-3:**		
CAS: 65997-17-3	glass, oxide, chemicals	990 mg/m³
CAS: 72869-86-4	urethane dimethacrylate (UDMA)	7,900 mg/m³
	silane**	4,700 mg/m³
CAS: 13463-67-7	titanium dioxide	2,000 mg/m³
	colorant**	2,200 mg/m³
CAS: 20344-49-4	iron hydroxide oxide	1,600 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Observe instructions for use.
Avoid contact with the eyes and skin.
· **Information about protection against explosions and fires:** Protect against electrostatic charges.

· **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.

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· **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 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

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Pasty
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **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/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
VOC content:	0.00 %
Solids content:	69.6 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** No further relevant information available.
· **Chemical stability** Stable at ambient temperature.

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· **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:**
Carbon dioxide
Carbon monoxide

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
stabilizer**		
Oral	LD50	530 mg/kg (mouse)
		910 mg/kg (rat male) (OECD 401)
Dermal	LD50	50 mg/kg (rabbit) (OECD 402)

· **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) is 17 689 mg/kg bodyweight.
ATEmix (Dermal) is 26 383 mg/kg bodyweight.
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)**	
titanium dioxide	2B
colorant**	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.

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· **Additional carcinogenic information:**
· **Repeated dose toxicity.** No further relevant information available.
· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
Repr. 1B
· **Germ cell mutagenicity** No further relevant information available.
· **Carcinogenicity** No further relevant information available.
· **Reproductive toxicity** No further relevant information available.
· **Specific target organ toxicity - single exposure** No further relevant information available.
· **Specific target organ toxicity - repeated exposure** No further relevant information available.
· **Aspiration hazard** No further relevant information available.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **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.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German regulation, AwSV) (Self-assessment): slightly hazardous to water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
· **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, 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.

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· **Packing group** · **DOT, ADR, IMDG, IATA**	Not regulated.
· **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):**
initiator**

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

glass, oxide, chemicals	ACTIVE
dimethacrylate**	ACTIVE
urethane dimethacrylate (UDMA)	ACTIVE
surface-treated silica**	ACTIVE
silane**	ACTIVE
titanium dioxide	ACTIVE
photoinitiator**	ACTIVE
synergist**	ACTIVE
photoinitiator**	ACTIVE
stabilizer**	ACTIVE
initiator**	ACTIVE
colorant**	ACTIVE
iron hydroxide oxide	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:**
Titanium dioxide (TiO_2) is on California's Proposition 65 list of chemicals but only in the form of airborne, unbound particles of respirable size. Particles of respirable size have an aerodynamic diameter of less than or equal to 10 micrometers (≤10 µm). These sized particles are particulate matter (PM) known as PM_{10}.

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This GC product does contain titanium dioxide but not in the form of airborne, unbound particles. Titanium dioxide is wetted out in a paste.

titanium dioxide

· **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
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)**

titanium dioxide	A4
colorant**	A4

· **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)**
Titanium dioxide (TiO_2) is on the NIOSH-Ca list as a potential occupational carcinogen from occupational exposures by inhalation.
This GC product does contain titanium dioxide but not in the form of inhalable particles. Titanium dioxide is wetted out in a paste.

titanium dioxide

· **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).

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· **Hazard pictograms**

· **Signal word** Danger

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

· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May damage fertility or the unborn child.

· **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.

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** 02/07/2021 / -

· **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 Umgang 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)

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OECD: Organization for Economic Cooperation and Development
IMDG Code: International Maritime Dangerous Goods Code
DOT: Department of Transportation (USA)
IATA: International Air Transport Association
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

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

· **Disclaimer:**
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Safety Data Sheet
acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/08/2021 Version US-EN-Rev 1 Reviewed on 02/08/2021

1 Identification

· **Product identifier**

· **Trade name:** G-CEM ONE™ ADHESIVE ENHANCING PRIMER

· **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 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@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**

Flam. Liq. 2	H225	Highly flammable liquid and vapor.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2A	H319	Causes serious eye irritation.
STOT SE 3	H335-H336	May cause respiratory irritation. May cause drowsiness or dizziness.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.

· **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.

Avoid use of this product in patients with known allergies to methacrylate monomer, methacrylate polymer, or ethyl alcohol (ethanol).

· **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

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Trade name: G-CEM ONE™ ADHESIVE ENHANCING PRIMER

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· **Hazard-determining components of labeling:**
ethyl alcohol
dimethacrylate**
phosphoric acid ester monomer**
butylated hydroxytoluene
· **Hazard statements**
Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation. May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Hazard(s) not otherwise classified (HNOC):** Exothermic polymerization.

· **Additional information:**
39 % 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:**		
CAS: 64-17-5	ethyl alcohol	25 – < 50%
	dimethacrylate**	10 – < 25%
	phosphoric acid ester monomer**	5 – < 10%
CAS: 128-37-0	butylated hydroxytoluene	1 – < 2.5%
	initiator**	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).

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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.
Rinse with warm water.
Seek medical treatment.
If symptoms persist consult doctor.
· **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**
No further relevant information available.
· **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:
Sulphur dioxide (SO2)
Carbon monoxide (CO)
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.
Keep away from ignition sources
Avoid contact with the eyes and skin.
Wear protective clothing.

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· **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.
· **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: 64-17-5	ethyl alcohol	1,800 ppm

· **PAC-2:**		
CAS: 64-17-5	ethyl alcohol	3300* ppm

· **PAC-3:**		
CAS: 64-17-5	ethyl alcohol	15000* ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Prevent formation of aerosols.
Ensure good ventilation/exhaustion at the workplace.
Observe instructions for use.
Avoid contact with the eyes and skin.

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:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Do not spray on a naked flame or any incandescent material.

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

CAS: 64-17-5 ethyl alcohol	
PEL	Long-term value: 1900 mg/m³, 1000 ppm
REL	Long-term value: 1900 mg/m³, 1000 ppm
TLV	Short-term value: 1880 mg/m³, 1000 ppm

· **Regulatory information**
PEL: Guide to Occupational Exposure Values (OSHA PELs)
REL: Guide to Occupational Exposure Values (NIOSH RELs)
TLV: Guide to Occupational Exposure Values (TLV)
· **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.

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· **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:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	77 °C (170.6 °F)
· **Flash point:**	11 °C (51.8 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	Undetermined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not self-igniting.
· **Danger of explosion:**	Heating may cause an explosion. Product is not explosive. However, formation of explosive air/ vapor mixtures are possible.
· **Explosion limits:**	
Lower:	3.5 Vol %
Upper:	15 Vol %
· **Vapor pressure:**	Not determined.

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· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	29.0 %
Water:	30.0 %
VOC content:	29.00 %
Solids content:	3.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity** Danger of polymerization.
· **Chemical stability** Stable at ambient temperature.
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **Possibility of hazardous reactions**
Danger of receptacles bursting because of high vapor pressure if heated.
Spontaneous polymerization can be caused in unstabilized product e.g. by ambient heat.
Exothermic polymerization.
· **Conditions to avoid** Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
· **Incompatible materials:**
Reacts with peroxides and other radical forming substances.
Reacts with amines.
Reacts with heavy metals.
· **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	10700 mg/kg (guinea pig) 1040 mg/kg (mouse) > 2930 mg/kg (rat (f+m))

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Dermal	LD50	> 2000 mg/kg (rat (f+m))

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Symptoms related to the physical, chemical and toxicological characteristics:**
No further relevant information available.
· **Subacute to chronic toxicity:** No further relevant information available.
· **Numerical measures of toxicity:**
ATEmix (Oral) is 5 200 mg/kg bodyweight.
ATEmix (Dermal) is >2 229 mg/kg bodyweight.
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)**	
ethyl alcohol	1
butylated hydroxytoluene	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.
· **Additional carcinogenic information:**
The substance, ethyl alcohol, also known as ethanol, is listed by IARC as a Group 1 carcinogen but in alcoholic beverage consumption. IARC Volume 100E (2012) "Personal Habits and Indoor Combustions" stated in its monograph “Consumption of Alcoholic Beverages” the following evaluation: “Ethanol in alcoholic beverages is carcinogenic to humans (Group 1).” GC products are not consumable alcoholic beverages.
· **Repeated dose toxicity.** No further relevant information available.
· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** No further relevant information available.
· **Carcinogenicity** No further relevant information available.
· **Reproductive toxicity** No further relevant information available.
· **Specific target organ toxicity - single exposure** No further relevant information available.
· **Specific target organ toxicity - repeated exposure** No further relevant information available.
· **Aspiration hazard** No further relevant information available.

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

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1170
· **UN proper shipping name**	
· **DOT**	Ethanol solutions
· **ADR**	1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
· **IMDG**	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
· **IATA**	ETHANOL SOLUTION

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· **Transport hazard class(es)**

· **DOT**

· **Class**	3 Flammable liquids
· **Label**	3

· **ADR**

· **Class**	3 (F1) Flammable liquids
· **Label**	3

· **IMDG, IATA**

· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	II
· **Environmental hazards:**	Not applicable.
· **Special precautions for user**	Warning: Flammable liquids
· **Hazard identification number (Kemler code):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **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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· **UN "Model Regulation":**	UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II

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):**
initiator**

· **TSCA (Toxic Substances Control Act):**	
water, distilled	ACTIVE
ethyl alcohol	ACTIVE
dimethacrylate**	ACTIVE
butylated hydroxytoluene	ACTIVE
initiator**	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:**
The substance ethyl alcohol, also known as ethanol, is on California's Proposition 65 list of "Chemicals Known to the State To Cause Cancer or Reproductive Toxicity" as a developmental toxicant but as "ethyl alcohol in alcoholic beverages." GC products are not consumable alcoholic beverages.

ethyl alcohol

· **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)

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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
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)**	
ethyl alcohol	A3
butylated hydroxytoluene	A4

· **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:**
ethyl alcohol
dimethacrylate**
phosphoric acid ester monomer**
butylated hydroxytoluene

· **Hazard statements**
Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation. May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.

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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@gc.dental

· **Date of preparation / last revision** 02/08/2021 / -

· **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
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 Umgang 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
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
Flam. Liq. 2: Flammable liquids – Category 2
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

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

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