



Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

1 Identification

- **Product identifier**

- **Trade name:** GC RELINE (Bonding Agent)

- **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 manufacture of dental prothesis

- **Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

GC America Inc.

3737 W. 127th Street

Alsip, IL 60803

USA

sds@gcamerica.com

- **Information department:** Regulatory Affairs

- **Emergency telephone number:**

During normal opening times (Mon.-Fri. 8:00 AM-5:00 PM CST): +1 (708) 597-0900

Transportation (CHEMTREC®) Emergency Telephone No. +1 (800) 424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**

Flam. Liq. 2 H225

Highly flammable liquid and vapor.

STOT RE 1 H372

Causes damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304

May be fatal if swallowed and enters airways.

Acute Tox. 4 H302

Harmful if swallowed.

Acute Tox. 4 H312

Harmful in contact with skin.

Acute Tox. 4 H332

Harmful if inhaled.

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.

STOT SE 3 H335-H336

May cause respiratory irritation. May cause drowsiness or dizziness.

- **Additional information:**

The information provided is in regards to the toxicity and hazard rating(s) of the individual component(s) in the formulation. The associated risk(s) depends on the route(s) of exposure. The hazard rating system is based entirely on the existence of the risk(s) and does not take into account the likelihood of reduced risk(s) through proper usage and handling.

- **Label elements**

- **GHS label elements**

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

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 1)

- **Hazard pictograms**



GHS02 GHS07 GHS08

- **Signal word** Danger

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

methyl methacrylate (MMA)
acetone
2-hydroxyethyl methacrylate (HEMA)

- **Hazard statements**

Highly flammable liquid and vapor.
Harmful if swallowed, in contact with skin or if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation. May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

- **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 / eye protection / face protection.
If swallowed: Immediately call a poison center/doctor.
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.

- **Classification system:**

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



Health = 2
Fire = 3
Reactivity = 3

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



HEALTH 1 Health = 1
FIRE 3 Fire = 3
REACTIVITY 3 Reactivity = 3

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

USA

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 2)

3 Composition/information on ingredients

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

- **Dangerous components:**

80-62-6	methyl methacrylate (MMA)	50-70%
67-64-1	acetone	25-50%
868-77-9	2-hydroxyethyl methacrylate (HEMA)	5-10%

- **Additional information:**

If a substance is marked with **, then substance is a trade secret. This is allowed under OSHA's Hazard Communication Standard (HCS) as a trade secret and under GHS as Confidential Business Information (CBI).

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Immediately remove any clothing soiled by the product.
If symptoms persist consult doctor.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
Do not use mouth to mouth or mouth to nose resuscitation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
Seek medical treatment.
- **After eye contact:**
Protect unharmed eye.
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Do not induce vomiting; immediately call for medical help.
Rinse out mouth and then drink plenty of water.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** Allergic reactions
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO₂, 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 and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

(Contd. on page 4)

USA

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 3)

· **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Remove persons from danger area.
Keep away from ignition sources
Avoid contact with the eyes and skin.
Wear protective clothing.

· **Environmental precautions:**

Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to penetrate the ground/soil.
In case of seepage into the ground inform responsible authorities.

· **Methods and material for containment and cleaning up:**

Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
Dispose of the collected material according to regulations.

· **Reference to other sections**

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

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

· **Information about protection against explosions and fires:**

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

· **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.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 4)

- **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:**

80-62-6 methyl methacrylate (MMA)

PEL	Long-term value: 410 mg/m ³ , 100 ppm
REL	Long-term value: 410 mg/m ³ , 100 ppm
TLV	Short-term value: 410 mg/m ³ , 100 ppm Long-term value: 205 mg/m ³ , 50 ppm (SEN) NIC-DSEN

67-64-1 acetone

PEL	Long-term value: 2400 mg/m ³ , 1000 ppm
REL	Long-term value: 590 mg/m ³ , 250 ppm
TLV	Short-term value: (1782) NIC-1187 mg/m ³ , (750) NIC-500 ppm Long-term value: (1188) NIC-594 mg/m ³ , (500) NIC-250 ppm BEI

- **Ingredients with biological limit values:**

67-64-1 acetone

BEI	50 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)
-----	--

- **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

USA

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 5)

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

Form: Liquid

Color: According to product specification

- **Odor:** Methacrylic

- **Odor threshold:** Not determined.

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

- **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 100 °C (212 °F)

- **Flash point:** -10 °C (14 °F)

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

- **Ignition temperature:** Undetermined.

- **Decomposition temperature:** Not determined.

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

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

- **Explosion limits:**

Lower: 2.1 Vol %

Upper: 13.0 Vol %

- **Vapor pressure:** Not determined.

- **Density at 20 °C (68 °F):** 0.95 g/cm³ (7.928 lbs/gal)

- **Relative density** Not determined.

- **Vapour density** Not determined.

- **Evaporation rate** Not determined.

- **Solubility in / Miscibility with**

Water: Insoluble.

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

- **Viscosity:**

Dynamic at 20 °C (68 °F): 0.6 mPas

Kinematic: Not determined.

- **Solvent content:**

Organic solvents: 26.9 %

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

10 Stability and reactivity

- **Reactivity** Danger of polymerization.

- **Chemical stability** Stable at ambient temperature.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 6)

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
Spontaneous polymerization can be caused in unstabilized product e.g. by ambient heat.
Danger of receptacles bursting because of high vapor pressure if heated.
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:** No dangerous decomposition products known.

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:** Irritant to skin and mucous membranes.
 - **on the eye:** Irritating effect.
 - **Sensitization:** Sensitization possible through skin contact.
 - **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant
 - **Carcinogenic categories**
 - **IARC (International Agency for Research on Cancer)**
- | | |
|--------------------------------|---|
| methyl methacrylate (MMA) | 3 |
| butylated hydroxytoluene (BHT) | 3 |
- **NTP (National Toxicology Program)**
 - None of the ingredients is listed.
 - **OSHA-Ca (Occupational Safety & Health Administration)**
 - None of the ingredients is listed.
 - **Carcinogenic categories' legend:**
IARC Group 1: The agent is carcinogenic to humans.
IARC Group 2A: The agent is probably carcinogenic to humans.
IARC Group 2B: The agent is possibly carcinogenic to humans.
IARC Group 3: The agent is not classifiable as to its carcinogenicity to humans.
IARC Group 4: The agent is probably not carcinogenic to humans.
NTP K: Known to be human carcinogen.
NTP R: Reasonably anticipated to be human carcinogen.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.

(Contd. on page 8)

USA

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 7)

- **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 2 (Self-assessment): hazardous for 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.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA | UN1993 |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA | Flammable liquids, n.o.s. (Methyl methacrylate monomer, stabilized, Acetone)
1993 Flammable liquids, n.o.s. (Methyl methacrylate monomer, stabilized, Acetone), special provision 640D
FLAMMABLE LIQUID, N.O.S. (METHYL METHACRYLATE MONOMER, STABILIZED, ACETONE) |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT | |
| <ul style="list-style-type: none"> · Class · Label | 3 Flammable liquids
3 |



(Contd. on page 9)

USA

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 8)

· 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:
 · Marine pollutant: No

· Special precautions for user Warning: Flammable liquids
 · Danger code (Kemler): 33
 · EMS Number: F-E, S-E

· 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": UN1993, Flammable liquids, n.o.s. (Methyl methacrylate monomer, stabilized, Acetone), special provision 640D, 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 ingredient is listed.

(Contd. on page 10)

USA

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 9)

· Section 313 (Specific toxic chemical listings):	
methyl methacrylate (MMA)	

· TSCA (Toxic Substances Control Act):	
methyl methacrylate (MMA)	
acetone	
2-hydroxyethyl methacrylate (HEMA)	

· Carcinogenic categories	
· EPA (Environmental Protection Agency)	
methyl methacrylate (MMA)	E, NL
acetone	I

· TLV (Threshold Limit Value established by ACGIH)	
methyl methacrylate (MMA)	A4
acetone	A4
butylated hydroxytoluene (BHT)	A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)	
None of the ingredients is listed.	

· **GHS label elements**

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

· **Hazard pictograms**



GHS02 GHS07 GHS08

· **Signal word** Danger

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

methyl methacrylate (MMA)

acetone

2-hydroxyethyl methacrylate (HEMA)

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed, in contact with skin or if inhaled.

Causes skin irritation.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause respiratory irritation. May cause drowsiness or dizziness.

Causes damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· **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 / eye protection / face protection.

If swallowed: Immediately call a poison center/doctor.

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.

(Contd. on page 11)

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 02/24/2015

Version US-EN-Rev 1

Reviewed on 02/24/2015

Trade name: GC RELINE (Bonding Agent)

(Contd. of page 10)

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

- **Department issuing MSDS:** Regulatory Affairs
- **Contact:**
Regulatory Affairs
Telephone No. +1 (708) 597-0900
sds@gcamerica.com
- **Date of preparation / last revision** 02/24/2015 / -
- **Abbreviations and acronyms:**
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
HCS: Hazard Communication Standard (USA)
MSDS: Material Safety Data Sheet
SDS: Safety Data Sheet
ECHA: European Chemicals Agency
OSHA: Occupational Safety and Health Administration (USA)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
Asp. Tox. 1: Aspiration hazard, Hazard 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:**
The information contained herein is believed to be true and accurate. However, all statements, recommendations or suggestions are made without any guarantee, representation or warranty, express or implied, on our part. Therefore, no warranty is made or to be implied that the information set out in this document is accurate or complete, and we accordingly exclude all liability in connection with the use of this information or the products referred to herein. All such risks are assumed by the purchaser/user. The information contained herein is also subject to change without notice. For the avoidance of doubt, however, nothing in this document excludes or limits our liability for death or personal injury caused by our negligence or for fraudulent misrepresentation.