

Safety Data Sheet

acc. to OSHA HCS 29 CFR 1910.1200

Printing date 07/05/2019

Version US-EN-Rev 1


Reviewed on 07/05/2019

1 Identification

- **Product identifier**
- **Trade name:** GC FujiCEM Evolve (Paste A, Shade: Universal)
- **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.
- **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** Warning
- **Hazard-determining components of labeling:**
2-hydroxyethyl methacrylate (HEMA)
urethane dimethacrylate (UDMA)
- **Hazard statements**
Causes skin irritation.

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Causes serious eye irritation.

May cause an allergic skin reaction.

· **Precautionary statements**

Avoid breathing dust/fume/gas/mist/vapors/spray

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

Wear protective gloves / 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.

Wash contaminated clothing before reuse.

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

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

· **Additional information:**

12.4 % 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:**

| | | |
|-----------------|------------------------------------|--------------|
| CAS: 868-77-9 | 2-hydroxyethyl methacrylate (HEMA) | 10 – < 25% |
| | dimethacrylate** | 5 – < 10% |
| CAS: 72869-86-4 | urethane dimethacrylate (UDMA) | 2.5 – < 5% |
| CAS: 128-37-0 | butylated hydroxytoluene | 0.1 – < 0.2% |
| | stabilizer** | 0.1 – < 0.2% |

· **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; 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.

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- **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**
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.

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.
- **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/m ³ |
| CAS: 868-77-9 | 2-hydroxyethyl methacrylate (HEMA) | 1.9 mg/m ³ |
| CAS: 72869-86-4 | urethane dimethacrylate (UDMA) | 120 mg/m ³ |
| | silane** | 71 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 18 mg/m ³ |

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| | | |
|-----------------|------------------------------------|-------------------------|
| CAS: 20344-49-4 | iron hydroxide oxide | 24 mg/m ³ |
| | colorant** | 15 mg/m ³ |
| · PAC-2: | | |
| CAS: 65997-17-3 | glass, oxide, chemicals | 170 mg/m ³ |
| CAS: 868-77-9 | 2-hydroxyethyl methacrylate (HEMA) | 21 mg/m ³ |
| CAS: 72869-86-4 | urethane dimethacrylate (UDMA) | 1,300 mg/m ³ |
| | silane** | 780 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 740 mg/m ³ |
| CAS: 20344-49-4 | iron hydroxide oxide | 260 mg/m ³ |
| | colorant** | 360 mg/m ³ |
| · PAC-3: | | |
| CAS: 65997-17-3 | glass, oxide, chemicals | 990 mg/m ³ |
| CAS: 868-77-9 | 2-hydroxyethyl methacrylate (HEMA) | 1,000 mg/m ³ |
| CAS: 72869-86-4 | urethane dimethacrylate (UDMA) | 7,900 mg/m ³ |
| | silane** | 4,700 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 4,500 mg/m ³ |
| CAS: 20344-49-4 | iron hydroxide oxide | 1,600 mg/m ³ |
| | colorant** | 2,200 mg/m ³ |

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Observe instructions for use.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Avoid contact with the eyes and skin.
- **Information about protection against explosions and fires:** 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.
- **Further information about storage conditions:**
Observe instructions for use / storage.
Keep receptacle tightly sealed.
- **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.

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· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

· **Breathing equipment:**



Suitable respiratory protective device recommended.

· **Protection of hands:**



Protective gloves

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Safety glasses

9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form:

Pasty

Color:

Universal

· **Odor:**

Odorless

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

Melting point/Melting range:

Undetermined.

Boiling point/Boiling range:

Undetermined.

· **Flash point:**

Not applicable.

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| | |
|---|--|
| · 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 at 20 °C (68 °F): | 1.8 g/cm ³ (15.02 lbs/gal) |
| · 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: | 50.0 % |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable at ambient temperature.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** 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:**

stabilizer**

| | | |
|------|------|----------------------------------|
| Oral | LD50 | 530 mg/kg (mouse) |
| | | 910 mg/kg (rat (f+m)) (OECD 401) |

- **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)**

| | |
|---------------------------------------|---|
| silicon dioxide | 3 |
| antimony nickel titanium oxide yellow | 3 |
| butylated hydroxytoluene | 3 |
| 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.

- **Repeated dose toxicity.** No further relevant information available.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
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.

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- **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 | Void |
| · UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | Void |
| · Transport hazard class(es) | |
| · DOT, ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | Void |
| · 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": | Void |

15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

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

antimony nickel titanium oxide yellow

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

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

CAS: 8007-18-9 | antimony nickel titanium oxide yellow

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **EPA carcinogenic categories' legend:**

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

A: human carcinogen (1986)

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

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

C: possible human carcinogen (1986)

D: not classifiable as to human carcinogenicity (1986)

E: evidence of non-carcinogenicity for humans (1986)

CaH: carcinogenic to humans

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)**

antimony nickel titanium oxide yellow

A4

butylated hydroxytoluene

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)**

None of the ingredients is listed.

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- **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** Warning

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

2-hydroxyethyl methacrylate (HEMA)
urethane dimethacrylate (UDMA)

- **Hazard statements**

Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.

- **Precautionary statements**

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

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

16 Other information

- **Department issuing SDS:** Regulatory Affairs

- **Contact:**

Regulatory Affairs
Telephone No. +1 (708) 597-0900
SDS.gcamerica@gc.dental

- **Date of preparation / last revision** 07/05/2019 / -

- **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

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ADR: Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

OECD: Organization for Economic Cooperation and Development

IMDG Code: International Maritime Dangerous Goods Code

DOT: Department of Transportation (USA)

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Irrit. 2: Skin corrosion/irritation – Category 2

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

Skin Sens. 1: Skin sensitisation – Category 1

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.

Disclaimer:

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1 Identification

- **Product identifier**
- **Trade name:** GC FujiCEM Evolve (Paste B, Shade: Universal)
- **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**
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Eye Dam. 1 H318 Causes serious eye damage.
- **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:**
ytterbium trifluoride
polybasic carboxylic acid**
- **Hazard statements**
Harmful if swallowed.

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Toxic in contact with skin.

Causes serious eye damage.

· **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.

Immediately call a poison center/doctor.

Specific treatment (see on this label).

Rinse mouth.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

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

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

· **Additional information:**

32.7 % 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: 13760-80-0 | ytterbium trifluoride | 25 – < 50% |
| CAS: 9003-01-4 | poly(acrylic acid) | 25 – < 50% |
| | polybasic carboxylic acid** | 5 – < 10% |
| | quartz (SiO ₂) | 2.5 – < 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).

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.

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.

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- **After eye contact:**
Protect unharmed eye.
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
- **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**
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, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water
- **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.

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.
- **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: 13760-80-0 ytterbium trifluoride | 30 mg/m ³ |
|---------------------------------------|----------------------|

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| | | |
|----------------|--|-------------------------|
| | polybasic carboxylic acid** | 1.6 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 18 mg/m ³ |
| | quartz (SiO ₂) | 0.075 mg/m ³ |
| CAS: 6381-92-6 | ethylene diaminetetraacetic acid sodium salt | 30 mg/m ³ |
| | silane** | 71 mg/m ³ |

· **PAC-2:**

| | | |
|-----------------|--|-----------------------|
| CAS: 13760-80-0 | ytterbium trifluoride | 330 mg/m ³ |
| | polybasic carboxylic acid** | 17 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 740 mg/m ³ |
| | quartz (SiO ₂) | 33 mg/m ³ |
| CAS: 6381-92-6 | ethylene diaminetetraacetic acid sodium salt | 330 mg/m ³ |
| | silane** | 780 mg/m ³ |

· **PAC-3:**

| | | |
|-----------------|--|-------------------------|
| CAS: 13760-80-0 | ytterbium trifluoride | 2,000 mg/m ³ |
| | polybasic carboxylic acid** | 100 mg/m ³ |
| CAS: 7631-86-9 | silicon dioxide | 4,500 mg/m ³ |
| | quartz (SiO ₂) | 200 mg/m ³ |
| CAS: 6381-92-6 | ethylene diaminetetraacetic acid sodium salt | 2,000 mg/m ³ |
| | silane** | 4,700 mg/m ³ |

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Observe instructions for use.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Avoid contact with the eyes and skin.
- **Information about protection against explosions and fires:** 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.
- **Further information about storage conditions:**
Observe instructions for use / storage.
Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Avoid contact with the eyes and skin.
Wash hands before breaks and at the end of work.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.

- **Breathing equipment:**



Suitable respiratory protective device recommended.

- **Protection of hands:**



Protective gloves

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**



Safety glasses

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

| | |
|--------------------------|-----------------|
| Form: | Pasty |
| Color: | Universal |
| · Odor: | Odorless |
| · Odor threshold: | Not determined. |

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

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| | |
|--|--|
| · Change in condition Melting point/Melting range: | Undetermined. |
| Boiling point/Boiling range: | Undetermined. |
| · Flash point: | Not applicable. |
| · 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 at 20 °C (68 °F): | 1.8 g/cm ³ (15.02 lbs/gal) |
| · 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: Water: | 26.4 % |
| VOC content: | 0.00 % |
| · Solids content: | 50.0 % |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable at ambient temperature.
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

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11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:** No further relevant information available.

- **Primary irritant effect:**

- **on the skin:** No irritant effect.

- **on the eye:** Strong irritant with the danger of severe eye injury.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive

- **Carcinogenic categories**

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

| | |
|----------------------------|---|
| ytterbium trifluoride | 3 |
| poly(acrylic acid) | 3 |
| silicon dioxide | 3 |
| quartz (SiO ₂) | 1 |

- **NTP (National Toxicology Program)**

| | |
|----------------------------|---|
| quartz (SiO ₂) | K |
|----------------------------|---|

- **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:**

Quartz (SiO₂) is in this product. Quartz is crystalline silica. Crystalline silica in the form of quartz dust is listed by IARC as a Group 1 carcinogen. IARC Volume 100C (2012)—"Arsenic, Metals, Fibres, and Dusts"—stated in its monograph titled, "Silica Dust, Crystalline, in the Form of Quartz or Cristobalite," the following evaluation: "Crystalline silica in the form of quartz or cristobalite dust is carcinogenic to humans (Group 1)."

This GC product does contain crystalline silica as quartz but not in the form of a dust. Quartz is wetted out in a paste.

Quartz (SiO₂) is in this product. Quartz is crystalline silica. Crystalline silica is listed by NTP as "Known To Be a Human Carcinogen" (shown on this SDS as "K"). NTP's 14th Report on Carcinogens (RoC) (2016) has crystalline silica listed as "Silica, Crystalline (Respirable Size)." Crystalline silica in a respirable size is crystalline silica dust.

This GC product does contain crystalline silica as quartz but not as a respirable size in the form of a dust. Quartz is wetted out in a paste.

- **Repeated dose toxicity.** No further relevant information available.

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- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
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 | Void |
| · UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | Void |
| · Transport hazard class(es) | |
| · DOT, ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | Void |
| · 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. |

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| | |
|-------------------------------|------|
| UN "Model Regulation": | Void |
|-------------------------------|------|

15 Regulatory information

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

| |
|--|
| · Section 355 (extremely hazardous substances): |
|--|

| |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

| |
|--|
| · Section 313 (Specific toxic chemical listings): |
|--|

| |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

| |
|---|
| · TSCA (Toxic Substances Control Act): |
|---|

| | |
|-----------------------------|--------|
| ytterbium trifluoride | ACTIVE |
| poly(acrylic acid) | ACTIVE |
| polybasic carboxylic acid** | ACTIVE |
| silicon dioxide | ACTIVE |
| quartz (SiO ₂) | ACTIVE |
| silane** | ACTIVE |
| water, distilled | ACTIVE |

| |
|-----------------------------------|
| · Hazardous Air Pollutants |
|-----------------------------------|

| |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

| |
|-------------------------|
| · Proposition 65 |
|-------------------------|

| |
|---|
| · Chemicals known to cause cancer: |
|---|

Quartz (SiO₂) is in this product. Quartz is crystalline silica. Crystalline silica in the form of airborne particles of respirable size is on California's Proposition 65 list of chemicals as a carcinogen. California's list of "Chemicals Known to the State To Cause Cancer or Reproductive Toxicity" has crystalline silica listed as "Silica, crystalline (airborne particles of respirable size)."

This GC product does contain crystalline silica as quartz but not as airborne particles of respirable size. Quartz is wetted out in a paste.

| |
|----------------------------|
| quartz (SiO ₂) |
|----------------------------|

| |
|--|
| · 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)

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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)**

Quartz (SiO₂) is in this product. Quartz is crystalline silica. Crystalline silica as α-quartz is listed by ACGIH as a "Suspected Human Carcinogen, A2." α-Quartz and β-quartz exist, but α-quartz is more stable and more common. ACGIH's 7th edition Documentation (2010) titled "Silica, Crystalline — α-Quartz and Cristobalite" discusses quartz in the form of respirable particulate matter (respirable dust). This GC product does contain crystalline silica as quartz but not as a respirable size in the form of a dust. Quartz is wetted out in a paste.

| | |
|----------------------------|----|
| ytterbium trifluoride | A4 |
| quartz (SiO ₂) | A2 |

· **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)**

Quartz (SiO₂) is in this product. Quartz is crystalline silica. "Silica, crystalline quartz" is listed by NIOSH as a potential occupational carcinogen. The NIOSH Hazard Review titled "Health Effects of Occupational Exposure to Respirable Crystalline Silica" (April 2002, Publication No. 2002-129) discusses quartz as respirable crystalline silica.

This GC product does contain crystalline silica as quartz but not as a respirable size in the form of a dust. Quartz is wetted out in a paste.

| |
|----------------------------|
| quartz (SiO ₂) |
|----------------------------|

· **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:**

ytterbium trifluoride
 polybasic carboxylic acid**

· **Hazard statements**

Harmful if swallowed.
 Toxic in contact with skin.
 Causes serious eye damage.

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· **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.
 - Immediately call a poison center/doctor.
 - Specific treatment (see on this label).
 - Rinse mouth.
 - Take off immediately all 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** 07/16/2019 / -

· **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)
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
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 3: Acute toxicity – Category 3
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

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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:

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