

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** CLEARFIL TRI-S BOND PLUS (CLEARFIL S³ BOND PLUS)
- **Article number:** CA154-172
- **Application of the substance / the preparation** Dental bonding material
- **Details of the supplier of the safety data sheet**
- **Manufacturer:**
Kuraray Noritake Dental Inc.
1621 Sakazu, Kurashiki, Okayama 710-0801,
Japan
- **Contact information:**
Kuraray America, Inc.
33 Maiden Lane, 6th Floor, New York,
NY 10038 U.S.A.
Tel: 800-879-1676
Fax: 888-700-5200
Website: www.kuraraydental.com

2 Composition/information on ingredients

- **Chemical characterization:** Single Component
- **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

| | | | |
|-----------|------------------------------------|----------------------------------|--------|
| 1565-94-2 | bisphenol A diglycidylmethacrylate | Xi R36/38 H315; H319 | 25-50% |
| 868-77-9 | 2-hydroxyethyl methacrylate | Xi R36/38-43 H315; H319; H317 | 10-25% |
| 64-17-5 | ethanol | F R11 H225 | 10-25% |

· **Other ingredients:**

10-Methacryloyloxydecyl dihydrogen phosphate
 Hydrophilic aliphatic dimethacrylate
 Hydrophobic aliphatic methacrylate
 Colloidal silica
 dl-Camphorquinone
 Accelerators
 Initiators
 Water

3 Hazards identification

- **Classification of the substance or mixture**



GHS02 Flame

H225 Highly flammable liquid and vapour.



GHS07

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

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· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R36/38-43: Irritating to eyes and skin. May cause sensitisation by skin contact.



F; Highly flammable

R11: Highly flammable.

· **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of international guidelines.

· **Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

· **Label elements**

· **GHS label elements**

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

· **Hazard pictograms** GHS02, GHS07

· **Signal word** Danger

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

2-hydroxyethyl methacrylate

· **Hazard statements**

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P241 Use explosion-proof electrical/ventilating/lighting/equipment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures

· **After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Do not induce vomiting; immediately call for medical help.

If symptoms persist consult doctor.

5 Firefighting measures

· **Suitable extinguishing agents:**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **Protective equipment:**

Wear self-contained respiratory protective device.

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Wear fully protective suit.

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6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
- **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**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a refrigerator (2-8°C).
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
Store away from reducing agents.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
- **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.
- **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.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **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 trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **General Information**

· **Appearance:**

Form: Liquid
Color: Yellow
Odor: Alcohol-like

· **pH-value:** 2.3

· **Change in condition**

Melting point/Melting range: -114.5 °C (ethanol)
Boiling point/Boiling range: 78 °C (ethanol)

· **Flash point:** 13 °C (ethanol)

· **Ignition temperature:** 425.0 °C (ethanol)

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

· **Explosion limits:**

Lower: 3.5 Vol % (ethanol)
Upper: 15.0 Vol % (ethanol)

· **Vapor pressure:** 59.0 hPa (20°C, ethanol)

· **Density:** 1.1 g/cm³
· **Vapour density:** 1.6 g/cm³ (ethanol, air=1)

· **Solubility in / Miscibility with**

Water: Fully miscible.

· **Segregation coefficient (n-octanol/water):** -0.32 (ethanol)

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

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

868-77-9 2-hydroxyethyl methacrylate

| | | |
|------|------|-------------------------|
| Oral | LD50 | 4680 mg/kg (guinea pig) |
| | | 3275 mg/kg (mouse) |
| | | 5050 mg/kg (rat) |

64-17-5 ethanol

| | | |
|------------|----------|------------------------------------|
| Oral | LD50 | 3450 mg/kg (mouse) |
| | | 7060 mg/kg (rat) |
| Inhalative | LC50/4 h | 20000 mg/l (rat) |
| | LD50 | 3600 mg/kg (rat - intraperitoneal) |

- **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

12 Ecological information

- **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.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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- **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 | UN1170 |
| · ADR, IMDG, IATA | 1170 |
| · UN proper shipping name | |
| · DOT | ETHANOL |
| · ADR | 1170 ETHANOL (ETHYL ALCOHOL) |
| · IMDG | ETHANOL (ETHYL ALCOHOL), mixture |
| · IATA | ETHANOL, mixture |
| · Transport hazard class(es) | |
| · DOT, IMDG, IATA | |
| |  |
| · Class | 3 Flammable liquids. |
| · Label | 3 |
| · ADR | |
| |  |
| · 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-D |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · UN "Model Regulation": | UN1170, ETHANOL (ETHYL ALCOHOL), 3, II |

15 Regulatory information

| |
|--|
| · Section 355 (extremely hazardous substances): |
| None of the ingredient is listed. |
| · Section 313 (Specific toxic chemical listings): |
| None of the ingredients is listed. |

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· TSCA (Toxic Substances Control Act):

All ingredients are 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:

64-17-5 ethanol

· EPA (Environmental Protection Agency)

None of the ingredients is listed.

· IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)

64-17-5 ethanol

A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Version: 1

· Relevant phrases

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

R11 Highly flammable.

R36/38 Irritating to eyes and skin.

R43 May cause sensitisation by skin contact.