1 Identification

- **Product identifier**
- **Trade name:** CLEARFIL Universal Bond Quick
- **Article number:** US216
- **Application of the substance / the mixture** Dental bonding material
- **Details of the supplier of the safety data sheet**
  - **Manufacturer:** Kuraray Noritake Dental Inc.
    1621 Sakuzu, 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: Substances** None
- **Chemical characterization: Mixtures**
- **Description:** Mixture of substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1565-94-2 bisphenol A diglycidylmethacrylate</td>
<td>☻ Skin Irrit. 2, H315; Eye Irrit. 2A, H319 10-25%</td>
</tr>
<tr>
<td>64-17-5 ethanol</td>
<td>☻ Flam. Liq. 2, H225; ☻ Carc. 1A, H350 10-25%</td>
</tr>
<tr>
<td>868-77-9 2-hydroxyethyl methacrylate</td>
<td>☻ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317 2.5-10%</td>
</tr>
</tbody>
</table>

- **Other ingredients:**
  - 10-Methacryloyloxydecyl dihydrogen phosphate
  - Hydrophilic amide monomers
  - Colloidal silica
  - Silane coupling agent
  - Sodium fluoride
  - dl-Camphorquinone
  - Water

3 Hazard(s) identification

- **Classification of the substance or mixture**

  ![Flame](image)
  Flam. Liq. 3 H226 Flammable liquid and vapor.

  ![Health hazard](image)
  Carc. 1A H350 May cause cancer.

(Contd. on page 2)
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.

Label elements

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:
- ethanol
- 2-hydroxyethyl methacrylate

Hazard statements
- H226 Flammable liquid and vapor.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H350 May cause cancer.

Precautionary statements
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools.
- P303+P361+P353 If on skin (or hair): 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).
- P363 Wash contaminated clothing before reuse.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

NFPA ratings (scale 0 - 4)
- Health = 1
- Fire = 3
- Reactivity = 0

HMIS-ratings (scale 0 - 4)
- Health = 1
- Fire = 3
- Reactivity = 0

4 First-aid measures

- Description of first aid measures
- General information:
  Avoid contact with eyes.
  Avoid contact with skin.
43.0.6

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: If symptoms persist consult doctor.

5 Fire-fighting 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.
Wear fully protective suit.

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.
- 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.

<table>
<thead>
<tr>
<th>64-17-5 ethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>TLV</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.
- Personal protective equipment:
- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  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.
- 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
Trade name: CLEARFIL Universal Bond Quick

- Odor: Alcohol-like
- Odor threshold: Not determined
- pH-value at 20 °C: 2.3
- Change in condition
  - Melting point/Melting range: Not determined
  - Boiling point/Boiling range: Not determined
- Flash point: 36 °C
- Flammability (solid, gaseous): Not determined
- Ignition temperature: Not determined
- Decomposition temperature: Not determined
- Auto igniting: Not determined
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- Explosion limits:
  - Lower: Not determined
  - Upper: Not determined
- Vapor pressure: Not determined
- Density: 1.1 g/cm³
- Relative density: Not determined
- Vapor density: Not determined
- Evaporation rate: Not determined
- Solubility in / Miscibility with Water: Partly miscible.
- Partition coefficient (n-octanol/water): Not determined.
- Viscosity: Not determined
- Dynamic: Not determined
- Kinematic: Not determined
- 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
  - Nitrogen oxides (NOx)

11 Toxicological information

- Acute toxicity:

  - LD/LC50 values that are relevant for classification:

  64-17-5 ethanol

<table>
<thead>
<tr>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50 3450 mg/kg (mouse) 7060 mg/kg (rat)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50/4 h 20000 mg/l (rat)</td>
</tr>
</tbody>
</table>
Trade name: CLEARFIL Universal Bond Quick

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-hydroxyethyl methacrylate</td>
<td>3600 mg/kg (rat - intraperitoneal)</td>
</tr>
</tbody>
</table>

**Primary irritant effect:**
- **on the skin:**
  - Irritating effect
  - 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)**
  - 64-17-5 ethanol 1
- **NTP (National Toxicology Program)**
  - None of the ingredients is listed.

**12 Ecological information**
- **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.
- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**
- **UN-Number** UN1170
- **DOT, ADR, IMDG, IATA**
  - Ethanol mixture
  - 1170 Ethanol mixture
  - ETHANOL (ETHYL ALCOHOL) mixture
  - ETHANOL mixture
Trade name: CLEARFIL Universal Bond Quick

- **Transport hazard class(es)**
  - **DOT**
    - Class 3 Flammable liquids
    - Label 3
  - **ADR, IMDG, IATA**
    - Class 3 Flammable liquids
    - Label 3
  - **Packing group**
    - DOT, ADR, IMDG, IATA III

- **Environmental hazards:**
  - Marine pollutant: No

- **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: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml
  - **IMDG**
    - Limited quantities (LQ) 5L
    - Excepted quantities (EQ) Code: E1
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 1000 ml

- **UN "Model Regulation":** UN 1170 ETHANOL MIXTURE, 3, III

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15 Regulatory information

- **Sara**
  - Section 355 (extremely hazardous substances):
    - None of the ingredient is listed.
  - Section 313 (Specific toxic chemical listings):
    - None of the ingredients is listed.
  - TSCA (Toxic Substances Control Act):
    - All ingredients are listed.
### Trade name: CLEARFIL Universal Bond Quick

### 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.

#### Relevant phrases
- Highly flammable liquid and vapor.
- Causes serious eye irritation.
- H225 Highly flammable liquid and vapor.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H350 May cause cancer.

#### Abbreviations and acronyms:
- Flam. Liq. 2: Flammable liquids – Category 2
- Flam. Liq. 3: Flammable liquids – Category 3
- 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
- Carc. 1A: Carcinogenicity – Category 1A
1 Identification of the substance/mixture and of the company/undertaking

· Product identifier
· Trade name: K-ETCHANT Syringe
· Article number: US197
· Application of the substance / the preparation Dental etching composite
· 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: Mixtures
· Description: Mixture of substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-38-2 phosphoric acid</td>
</tr>
</tbody>
</table>

· Other ingredients:
  Polyethylene glycol
  Colloidal silica
  Water
  Pigment

3 Hazards identification

· Classification of the substance or mixture

GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

· Label elements
· GHS label elements
  The product is classified and labelled according to the Globally Harmonized System (GHS).
· Hazard pictograms GHS05
· Signal word Danger

· Hazard-determining components of labelling:
  phosphoric acid

· Hazard statements
  H314 Causes severe skin burns and eye damage.

· Precautionary statements
  P260 Do not breathe dust/fume/gas/mist/vapours/spray.
  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.
  P310 Immediately call a POISON CENTER or doctor/physician.

(Contd. on page 2)

USA
Trade name: K-ETCHANT Syringe

4 First aid measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** 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. Then consult a doctor.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a 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.
  - Wear fully protective suit.

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).
  - Use neutralizing agent.
  - Dispose contaminated material as waste according to item 13.
  - 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.
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:

<table>
<thead>
<tr>
<th>Component</th>
<th>PEL 1 mg/m³</th>
<th>REL Short-term value: 3 mg/m³</th>
<th>REL Long-term value: 1 mg/m³</th>
<th>TLV Short-term value: 3 mg/m³</th>
<th>TLV Long-term value: 1 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-38-2 phosphoric acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 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.
- 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.
9 Physical and chemical properties

- General Information
  - Appearance:
    - Form: Gel
    - Color: Blue
    - Odor: Odorless
  - pH-value: 1.9
- Change in condition
  - Melting point/Melting range: 42.4 °C (phosphoric acid)
  - Boiling point/Boiling range: Undetermined.
- Flash point: Not applicable.
- Ignition temperature: Not applicable
- Danger of explosion: Product does not present an explosion hazard.
- Explosion limits:
  - Lower: Not applicable
  - Upper: Not applicable
- Vapor pressure: Not applicable
- Density: 1.3 g/cm³
- Vapour density: Not applicable
- Solubility in / Miscibility with
  - Water: Partly miscible.
- Partition coefficient (n-octanol/water): Not applicable
- 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:
    7664-38-2 phosphoric acid
    - Oral LD50 1250 mg/kg (mouse)
      1250 mg/kg (rat)
    - Dermal LD50 2740 mg/kg (rabbit)
Trade name: K-ETCHANT Syringe

- Primary irritant effect:
  - on the skin: Caustic effect on skin and mucous membranes.
  - on the eye: Strong caustic effect.
  - Sensitization: No sensitizing effects known.
- Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
  - Corrosive
  - Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    - None of the ingredients is listed.
  - NTP (National Toxicology Program)
    - None of the ingredients is listed.

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.
    - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
    - Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

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.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT
  - ADR, IMDG, IATA
  - UN proper shipping name
  - ADR
  - IMDG, IATA
  - UN1805
  - 1805
  - 1805 PHOSPHORIC ACID, SOLUTION
  - PHOSPHORIC ACID, SOLUTION

(Contd. on page 4)
Trade name: K-ETCHANT Syringe

- Transport hazard class(es)
  - DOT
    - Class
      - 8 Corrosive substances.
    - Label
      - 8
  - ADR, IMDG, IATA
    - Class
      - 8 Corrosive substances
    - Label
      - 8
- Packing group
  - DOT, ADR, IMDG, IATA
    - III
- Environmental hazards:
  - Marine pollutant:
    - No
- Special precautions for user
  - Warning: Corrosive substances
  - Danger code (Kemler):
    - 80
  - EMS Number:
    - F-A,S-B
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.
- UN "Model Regulation":
  - UN1805; PHOSPHORIC ACID, SOLUTION; 8; III

15 Regulatory information

- Sara
  - Section 355 (extremely hazardous substances):
    - None of the ingredient is listed.
  - Section 313 (Specific toxic chemical listings):
    - 7664-38-2 phosphoric acid
- 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:
    - None of the ingredients is listed.
### Trade name: K-ETCHANT Syringe

<table>
<thead>
<tr>
<th>Cancerogenity categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA (Environmental Protection Agency)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>TLV (Threshold Limit Value established by ACGIH)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>NIOSH-Ca (National Institute for Occupational Safety and Health)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
<tr>
<td><strong>OSHA-Ca (Occupational Safety &amp; Health Administration)</strong></td>
</tr>
<tr>
<td>None of the ingredients is listed.</td>
</tr>
</tbody>
</table>

### 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**
  - H314 Causes severe skin burns and eye damage.