1 Identification

- **Product identifier**
  - **Trade name:** CLEARFIL PHOTO BOND ; UNIVERSAL
  - **Article number:** US023-U
  - **Relevant identified uses of the substance or mixture and uses advised against**
    - No further relevant information available.
  - **Application of the substance / the mixture** 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
  - **Emergency telephone number:** For chemical emergency spill, leak, fire, exposure or accident
    Call CHEMTREC day and night
    Within USA and Canada: 1-800-424-9300 CCN706984 or
    +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - GHS02 Flame
    - Flam. Liq. 2 H225 Highly flammable liquid and vapor.
  - GHS08 Health hazard
    - Carc. 1A H350 May cause cancer.
- **Label elements**
  - **GHS label elements**
    - The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms** GHS02, GHS08
  - **Signal word** Danger
- **Hazard-determining components of labeling:**
  - ethanol
  - **Hazard statements**
    - H225 Highly flammable liquid and vapor.
    - H350 May cause cancer.
- **Precautionary statements**
  - P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - P233 Keep container tightly closed.
  - P240 Ground/bond container and receiving equipment.
  - P241 Use explosion-proof electrical/ventilating/lighting/equipment.
  - P242 Use only non-sparking tools.
  - P280 Wear protective gloves / eye protection / face protection.

(Contd. on page 2)
Trade name: CLEARFIL PHOTO BOND ; UNIVERSAL

(Contd. of page 1)

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

3 Composition/information on ingredients

- Chemical characterization: Substances None
- Chemical characterization: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:
- 64-17-5 ethanol
  - Flam. Liq. 2, H225; Carc. 1A, H350 >90%

Other ingredients:
- Catalysts
- Accelerators

4 First-aid measures

- Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing:
    - Do not induce vomiting; immediately call for medical help.
    - If symptoms persist consult doctor.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed: No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - Special hazards arising from the substance or mixture: No further relevant information available.
  - Advice for firefighters
  - Protective equipment:
    - Wear self-contained respiratory protective device.
    - 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.
7 Handling and storage

- **Handling:**
  - Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.
  - Information about protection against explosions and fires:
    - Keep ignition sources away - Do not smoke.
    - Protect against electrostatic charges.

- **Conditions for safe storage, including any incompatibilities**
  - 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:**
  - 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:

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL</th>
<th>REL</th>
<th>TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
<td>1900 mg/m³, 1000 ppm</td>
<td>1900 mg/m³, 1000 ppm</td>
<td>1880 mg/m³, 1000 ppm</td>
</tr>
</tbody>
</table>

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

- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures: Wash hands before breaks and at the end of work.
    - Breathing equipment: Not required.

- Protection of hands:
  - 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 breakthrough 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

- **Appearance:**
  - Liquid
  - Transparent
  - Alcohol-like

- **pH-value:**
  Not determined

- **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)

- **Decomposition temperature:**
  Not determined

- **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)

- **Oxidizing properties:**
  Not determined

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

- **Density:**
  1.1 g/cm³

- **Relative density:**
  Not determined

- **Vapor density:**
  1.6 g/cm³ (ethanol, air=1)

- **Evaporation rate:**
  Not determined

- **Solubility in / Miscibility with Water:**
  Fully miscible.

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

- **Viscosity:**
  Not determined

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

### 10 Stability and reactivity

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

(Contd. of page 5)
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
    - LD/LC50 values that are relevant for classification:
      
      | compound        | Oral LD50 | Oral LC50/4 h | Oral LD50 intraperitoneal |
      |------------------|-----------|---------------|--------------------------|
      | 64-17-5 ethanol  | 3450 mg/kg (mouse) | 20000 mg/l (rat) | 3600 mg/kg (rat - intraperitoneal) |
      |                  | 7060 mg/kg (rat) |               |                          |

- Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.

- Additional toxicological information:
  - 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

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

14 Transport information

- **UN-Number**
  - DOT UN1170
  - ADR, IMDG, IATA 1170

- **UN proper shipping name**
  - ADR 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
  - IMDG ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
  - IATA ETHANOL SOLUTION

- **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 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 SOLUTION (ETHYL ALCOHOL SOLUTION); 3; II

(Contd. on page 7)
15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  · 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.
  · 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:
      All ingredients are listed.
  · Cancerogenity categories
    · EPA (Environmental Protection Agency)
      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.
  · Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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
  H225 Highly flammable liquid and vapor.
  H350 May cause cancer.

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

· HMIS-ratings (scale 0 - 4)
  HEALTH 3
  FIRE 1
  REACTIVITY 0

· Abbreviations and acronyms:
  Flam. Liq. 2: Flammable liquids – Category 2
  Carc. 1A: Carcinogenicity – Category 1A

* Data compared to the previous version altered.