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

- Product identifier
- Trade name: CLEARFIL DC Activator
- Article number: 196
- 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: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Dangerous components:</th>
</tr>
</thead>
<tbody>
<tr>
<td>64-17-5 ethanol</td>
</tr>
</tbody>
</table>

- Other ingredients:
  Catalysts
  Accelerators

3 Hazards identification

- Classification of the substance or mixture
  GHS02 Flame
  Flam. Liq. 2 H225 Highly flammable liquid and vapour.

- Label elements
- GHS label elements
  The product is classified and labelled according to the Globally Harmonized System (GHS).
- Hazard pictograms GHS02
- Signal word Danger
- Hazard statements
  H225 Highly flammable liquid and vapour.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P240 Ground/bond container and receiving equipment.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)
Safety Data Sheet
acc. to OSHA HCS

Trade name: CLEARFIL DC Activator

· Classification system:
  · NFPA ratings (scale 0 - 4)
    - Health = 0
    - Fire = 3
    - Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    - Health = 0
    - Fire = 3
    - Reactivity = 0
  · Other hazards Not applicable

4 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.

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).
  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.
  · Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
Trade name: CLEARFIL DC Activator

- **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:**

<table>
<thead>
<tr>
<th>64-17-5 ethanol</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>1900 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>1900 mg/m³, 1000 ppm</td>
</tr>
<tr>
<td>TLV (Short-term value)</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.
- **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 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**: Transparent
  - **Odor**: Alcohol-like
- **pH-value**: Not applicable
**Trade name: CLEARFIL DC Activator**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>-114.5 °C (ethanol)</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>78 °C (ethanol)</td>
</tr>
<tr>
<td>Flash point</td>
<td>13 °C (ethanol)</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>425.0 °C (ethanol)</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Product is not explosive. However, formation of explosive air/vapor mixtures are possible.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>3.5 Vol % (ethanol)</td>
</tr>
<tr>
<td>Upper</td>
<td>15.0 Vol % (ethanol)</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>59.0 hPa (20 °C, ethanol)</td>
</tr>
<tr>
<td>Density</td>
<td>0.79 g/cm³</td>
</tr>
<tr>
<td>Vapour density</td>
<td>1.6 g/cm³ (ethanol, air=1)</td>
</tr>
<tr>
<td>Solubility in/Miscibility with Water</td>
<td>Fully miscible.</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>-0.32 (ethanol)</td>
</tr>
<tr>
<td>VOC content</td>
<td>752.8 g/l / 6.28 lb/gl</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Route</th>
<th>LD/LC50 values that are relevant for classification:</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) LD50 3600 mg/kg (rat - intraperioneal)</td>
</tr>
</tbody>
</table>

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

- IARC (International Agency for Research on Cancer)
  - None of the ingredients is listed.
Trade name: CLEARFIL DC Activator

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.
- 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, IATA ETHANOL SOLUTION
- ADR 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
- IMDG ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
- Transport hazard class(es)
- DOT
  - Class 3 Flammable liquids.
  - Label 3
- ADR, IMDG, IATA
  - Class 3 Flammable liquids
  - Label 3
Trade name: CLEARFIL DC Activator

- Packing group
  - DOT, ADR, IMDG, IATA: II

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  - Danger code (Kemler): Warning: Flammable liquids 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

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.
  - 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.
  - 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.