1) PRODUCT IDENTIFICATION

Product: MC7680-UFS
Product Description: Low dielectric constant and loss, Low ionic impurities, Low moisture absorption, High temperature stability.
Recommendation On Use: Ultra high temp encapsulation, flip chip underfill
General Use: Underfill
Restriction On Use: Intended for designated use only.

2) HAZARD IDENTIFICATION

Signal Word: Warning

Immediate Concerns:
Medical Conditions Aggravated:

Physical Appearance:
Paste

Potential Health Effects:

Eyes:
Irritant
Skin:
Adverse symptoms may include irritation and redness

Eyes:
Irritant
Skin:
Adverse symptoms may include irritation, watering and redness

Ingestion:
No specific data

Inhalation:
Irritant

Ingestion:
None under normal use

Inhalation:
No specific data

Acute Toxicity:
No known significant effects or critical hazards

Chronic Exposure:
Repeated skin contact may cause irritation

Reproductive Effects:
Not known to cause any reproductive effects

Teratogenic Effects:
None under normal use

Target Organ Statement:
No known significant effects or critical hazards

3) COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>CAS NO</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon dioxide</td>
<td>14808-60-7</td>
<td>65-80</td>
</tr>
<tr>
<td>Cyanate Ester Admixture</td>
<td>1156-51-0</td>
<td>30-05</td>
</tr>
<tr>
<td>Polybutadiene, modified</td>
<td>129288-65-9</td>
<td>02-05</td>
</tr>
<tr>
<td>2,2,4-Trimethyl-1,3-pentanediol disobutyrate</td>
<td>25265-77-4</td>
<td>01-05</td>
</tr>
<tr>
<td>Nonylphenol</td>
<td>84852-15-3</td>
<td>02-05</td>
</tr>
</tbody>
</table>

NOTE: * For powders only; in adhesive product, powders are bound in adhesive and values are not applicable.

4) FIRST AID MEASURES

First Aid Eye:
Immediately flush eyes with eye wash solution or clean water holding the eyelids apart for 15 minutes. If symptoms develop, seek medical attention.

First Aid Ingest:
If swallowed, do not induce vomiting. Keep person resting and seek medical attention.

First Aid Skin:
Wash with soap and water. If symptoms develop, seek medical attention.

Physician Note:
No specific treatment. Treat symptomatically.

First Aid Inhale:
Move to fresh air. Seek medical attention.

Acute Symptoms:
Seek medical treatment

5) FIRE FIGHTING MEASURES

Flammable Class: 1
General Hazard: No specific fire or explosion hazard.
Extiguish Media: Sodium Bicarbonate and water
Hazardous Combustion Products: Unknown

Fire Fighting Procedures:
Use self-contained breathing apparatus; decomposition and combustion products may be toxic.

Unsuitable Firefighting Equipment:
Self-contained breathing apparatus should be available for fire fighters.

Suitable Firefighting Equipment: Not determined
Sensitive To Static Discharge: No
Sensitive To Impact: No
6) ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Spill Type</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Cover with sand and place in waste containers for disposal</td>
</tr>
<tr>
<td>Large</td>
<td>Contain spill and place in waste containers for disposal</td>
</tr>
<tr>
<td>Water</td>
<td>Keep from going into water systems</td>
</tr>
<tr>
<td>Land</td>
<td>Contain spill and place in waste containers for disposal</td>
</tr>
</tbody>
</table>

**General Procedures:**
Use the necessary tools and protective equipment

**Release Notes:**
Unknown

7) HANDLING AND STORAGE

<table>
<thead>
<tr>
<th>Handling</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use latex gloves and safety glasses</td>
<td>-40C</td>
</tr>
</tbody>
</table>

8) EXPOSURE CONTROLS / PERSONAL PROTECTION

**PPE Eye And Face:**
Personal protective equipment should be worn based on the task being performed

**PPE Skin:**
Personal protective equipment should be worn based on the task being performed

**Engineering Controls:**

<table>
<thead>
<tr>
<th>Controls</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>EINECS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>Respirator selection must be based on known or anticipated exposure levels</td>
<td>0.1 mg/m³ *</td>
<td>0.1 mg/m³ *</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Emissions from ventilation equipment should be checked to ensure they comply with the requirements of environmental protection legislation</td>
<td>None Established</td>
<td>None Established</td>
</tr>
<tr>
<td>Other</td>
<td>Personal protective equipment should be worn based on the task being performed</td>
<td>None Established</td>
<td>None Established</td>
</tr>
</tbody>
</table>

**Work Hygienic Practices:**
Emissions from ventilation equipment should be checked to ensure they comply with the requirements of environmental protection legislation

None Established

9) PHYSICAL AND CHEMICAL PROPERTIES

**Flashpoint And Method:**
Unknown

**Upper Flammable Limits:**
Unknown

**Autoignition Temperature:**
Unknown

**Color:**
Light beige

**Vapor Pressure:**
Unknown

**Vapor Density:**
Not tested

**Boiling Point:**
Not Determined

**Melting Point:**
240 deg C

**Evaporation Rate:**
<0.1 %

**Specific Gravity:**
1.8

**Molecular Weight:**
Not tested

**Appearance:**
Paste

**Lower Flammable Limits:**
Unknown

**Physical State:**
Paste

**Odor:**
Slight chemical odor

**Odor Threshold:**
Not Determined

**PH:**
Not tested

**Freezing Point:**
-45 deg C

**Solubility In Water:**
None

**Density:**
1.8

**Viscosity:**
9,000 cp

**Coeff. Oil/Water:**
Not tested

10) STABILITY AND REACTIVITY

**Hazardous Polymerization:**
Stable under normal conditions of storage and use

**Chemical Stability:**
Stable

**Polymerization:**
Hazardous polymerization may occur.

**Conditions To Avoid:**
Avoid excessive heat. Do not store near heat or flame

**Hazardous Decomposition Products:**
Not determined

**Incompatibility Materials:**
Not determined

11) TOXICOLOGICAL INFORMATION

**Acute:**

<table>
<thead>
<tr>
<th>Route</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyes</td>
<td>Stable under recommended storage and handling cond</td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>Not tested</td>
</tr>
<tr>
<td>Oral LD50</td>
<td>Not tested</td>
</tr>
<tr>
<td>Inhalation LC50</td>
<td>Not tested</td>
</tr>
</tbody>
</table>

**Eye Effects:**
May cause burning and watery eyes
12) ECOLOGICAL INFORMATION

Ecotoxicity: No known significant effects or critical hazards
Mobility In Soil: No known significant effects or critical hazards
Persistence And Degradability: No known significant effects or critical hazards
Bioaccumulative Potential: No known significant effects or critical hazards

13) DISPOSAL CONSIDERATIONS

Disposal Method: Dispose of in an approved landfill.
For Large Spills: Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements
Product Disposal: Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements
Empty Container: Disposal of this product should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements

14) TRANSPORT INFORMATION

Road And Rail (ADR/RID)
Transport Information: Kemerler Number: Hazard Class:
Not Regulated Unknown Irritant
Air (CIAO/IATA)
Shipping Name: Technical Name:
Not Regulated N.A.
UN Number: Primary Hazard Class: Label:
N.A. N.A. N.A.
Packing Group: Vessel (IMO/IMDG)
Technical Name:
N.A.
UN Shipping Name: Primary Hazard Class: Label:
N.A. N.A. N.A.
Packing Group: 

15) REGULATORY INFORMATION

TCSA: This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.
Gastrointestinal: Not Determined
Respiratory System: Not Determined

16) OTHER INFORMATION

HMIS Health Rating (1-4): 1 HMIS Flammability Rating (1-4): 1
HMIS Physical Hazard Rating (1-4): 0 Long Term Health Affects (Y/N): N

Note: All ingredients in this product are on the Toxic Substances Control Act (TSCA) inventory or are not required to be listed and are compliant with EC regulation 1907-2006 Art. 31 Annex II. The ingredients are compliant with RoHS, REACH and are halogen free.
No ingredient in this product is known to be carcinogenic.
Ingredients listed on the New Jersey "RIGHT TO KNOW" substance list: None

Section X: HMIG Rating: Health-1, Flammability-1, Reactivity-0, Protective Equipment-D

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