BREWER SCIENCE INC.
SAFETY DATA SHEET

This Safety Data Sheet has been prepared to comply with the EU Regulation and the OSHA Hazard Communication Standard.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

1.1 Product Identifier:
Trade Name: WaferBOND® CR-200
SDS Date of Preparation: 1/17/08

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against:
Product Use: Temporary Adhesive
Uses Advised Against: None

1.3 Details of the Supplier of the Safety Data Sheet:
Manufacturer: Brewer Science, Inc.
2401 Brewer Drive
Rolla, MO 65401

Information Phone Number: (573) 364-0300
Fax Number: (573) 368-3318
E-mail: msds@brewerscience.com

1.4 Emergency Telephone Number:
Emergency Spill Information:
Chemtree Domestic North America: (800) 424-9300
Chemtree International: (703) 527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture: Harmful (Xn) R38, R65, R66

2.2 Label Elements:
Contains 1-Dodecene
R38 Irritating to skin.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin drying or cracking.
S24 Avoid contact with skin.
S28 After contact with skin, wash immediately with plenty of soap and water.
S36/37 Wear suitable protective clothing and gloves.
S62 If swallowed do not induce vomiting: seek medical advice immediately and show this container of label.
S35 This material and its container must be disposed of in a safe way.

2.3 Other Hazards: EUH066 Repeated exposure may cause skin dryness or cracking.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>EINECS#</th>
<th>EU Classification (67/548/EEC)</th>
<th>CLP Annex VI Classification</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Dodecene</td>
<td>112-41-4</td>
<td>203-968-4</td>
<td>Xn R38, R65, R66</td>
<td>Asp. Tox. Cat 1 (H304), Skin Irrit. Cat 2 (H315), Flam. Liq. Cat 4 (H227), EUH066</td>
<td>50-60</td>
</tr>
<tr>
<td>Polymer Solids</td>
<td>Proprietary</td>
<td>Proprietary</td>
<td>No EU Classification or R</td>
<td>No GHS Classification</td>
<td>40-50</td>
</tr>
</tbody>
</table>

Prepared By: Safety & Environmental Units
Approved By: Safety & Environmental Units
Issue/Revision Date: F.7.6.3277.G / 9/12/13
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See Section 16 for further information on EU and GHS Classification.

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures:

Eye: Rinse thoroughly with water, while holding the eyelids open to be sure the material is washed out. Get medical attention if irritation or symptoms of exposure develop.

Skin: Remove contaminated clothing. Wash contact area thoroughly with soap and water. Get medical attention if irritation persists. Launder clothing before re-use.

Inhalation: Remove victim to fresh air. Give artificial respiration if needed. If breathing is difficult, oxygen should be administered by qualified personnel. Get medical attention if symptoms of exposure persist.

Ingestion: Aspiration hazard: DO NOT induce vomiting. Keep the victim calm and warm. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. Get immediate medical attention.

4.2 Most Important symptoms and effects, both acute and delayed: May cause eye and skin irritation. Inhalation of vapors may cause headache, dizziness, nausea and other symptoms of central nervous system depression. Aspiration hazard: material may enter the lungs if swallowed and cause lung injury. Repeated skin exposure may cause defatting or drying of skin.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical attention is required if swallowed.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media: Use water fog or spray, foam, carbon dioxide or dry chemical.

5.2 Special Hazards Arising from the Substance or Mixture:

Unusual Fire and Explosion Hazards: Combustible liquid. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Vapors may form explosive mixtures with air in confined areas.

Combustion Products: Oxides of carbon and unknown materials.

5.3 Advice for Fire-Fighters:

Wear an approved, positive pressure, self-contained breathing apparatus and full protective clothing. Cool fire exposed containers with water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures:

Remove all ignition sources such as open flames, spark producing equipment, pilot lights, etc. Wear appropriate protective clothing to prevent eye and skin contact including impervious gloves, safety goggles and respirator if needed. Ventilate area.

6.2 Environmental Precautions:

Report spills and releases as required to appropriate authorities.

6.3 Methods and Material for Containment and Cleaning Up:

Cover with an inert absorbent material and collect into an appropriate container for disposal.

6.4 Reference to Other Sections:

Refer to Section 8 for Personal Protective Equipment and Section 13 for Disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling: Avoid breathing vapors, aerosols and mists. Use with adequate ventilation. Avoid contact with the eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly after handling. Do not eat, drink or smoke in the work area. Keep product away from heat, sparks, flames and all other sources of ignition. No smoking in storage or use areas. Keep containers closed when not in use.
7.2 Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, well-ventilated location away from oxidizers and other incompatible materials. Keep containers closed when not in use.

7.3 Specific end use(s): Industrial use only

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Dodecene</td>
<td>None Established</td>
</tr>
<tr>
<td>Polymer Solids</td>
<td>None Established</td>
</tr>
</tbody>
</table>

8.2 Exposure Controls:

Ventilation: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits. Use explosion proof electrical equipment and wiring where required.

Personal Protective Equipment:

Respiratory Protection: If needed, an approved respirator with organic vapor cartridges may be used. For higher exposures, supplied air respirator may be required. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

Skin Protection: Impervious gloves such as nitrile rubber or viton are recommended. Contact your glove supplier for selection assistance.

Eye Protection: Chemical safety glasses or goggles recommended if splashing is possible.

Other Protective Equipment: Impervious clothing is required to prevent skin contact and contamination of personal clothing. An eye wash facility and safety shower should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic Physical and Chemical Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Clear, colorless liquid</td>
</tr>
<tr>
<td>Odor:</td>
<td>Mild, pleasant odor</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>No data available</td>
</tr>
<tr>
<td>pH:</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point/Freezing Point:</td>
<td>-35°C (-31°F) (1-Dodecene)</td>
</tr>
<tr>
<td>Initial Boiling Point/Range:</td>
<td>213°C (415°F) (1-Dodecene)</td>
</tr>
<tr>
<td>Flash Point:</td>
<td>77.2°C (171°F) (1-Dodecene)</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not available</td>
</tr>
<tr>
<td>Flammable Limits:</td>
<td>UEL: 5.4 vol % (1-Dodecene)</td>
</tr>
<tr>
<td></td>
<td>OEL: 0.6 vol % (1-Dodecene)</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>0.159 mm Hg @ 23°C (77°F)</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>Mixture</td>
</tr>
<tr>
<td>Molecular Weight:</td>
<td>Mixture</td>
</tr>
<tr>
<td>Vapor Density:</td>
<td>5.81 (1-Dodecene)</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility:</td>
<td>No data available</td>
</tr>
<tr>
<td>Octanol/Water Partition Coefficient:</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature:</td>
<td>255°C (491°F) (1-Dodecene)</td>
</tr>
<tr>
<td>Decomposition Temperature:</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity:</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive Properties:</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing Properties:</td>
<td>Not an oxidizer</td>
</tr>
<tr>
<td>Relative Density:</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas):</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

9.2 Other Information: None available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not reactive.

10.2 Chemical Stability: Stable

10.3 Possibility of Hazardous Reactions: Will not occur.

10.4 Conditions to Avoid: Keep away from heat, sparks, flames and other sources of ignition.

10.5 Incompatible Materials: Strong oxidizing agents, acids, and reducing agents.

Prepared By: Safety & Environmental Units
Approved By: Safety & Environmental Units
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10.6 Hazardous Decomposition Products: Combustion will produce oxides of carbon and unknown materials.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects:

Potential Health Effects:
- **Eye:** May cause slight irritation with redness and blurred vision. Corneal injury in unlikely.
- **Skin:** May cause redness, irritation, and dryness. Prolonged or repeated exposure may cause defatting and dermatitis.
- **Inhalation:** Inhalation of vapors, mists or aerosols may cause central nervous system depression with symptoms of headache, dizziness, nausea, drowsiness and unconsciousness may also occur.
- **Ingestion:** Swallowing may cause central nervous system depression with headache, nausea, dizziness and unconsciousness, gastrointestinal irritation with nausea, vomiting and diarrhea and injury to the lungs and brain.
- **Aspiration hazard:** May cause lung damage during swallowing or vomiting.
- **Chronic Hazards:** No chronic effects are anticipated.

**Acute Toxicity Values:**
- 1-Dodecene: Oral rat LD50 ->10,000 mg/kg; Skin rabbit LD50 ->10,000 mg/kg; Inhalation rat LC50 ->4,400 mg/m3/6 hours
- Polymer Solids: No toxicity data available

**Skin corrosion/irritation:** 1-Dodecene: Irritating to the skin.

**Eye damage/irritation:** 1-Dodecene: Not expected to cause eye irritation.

**Respiratory Irritation:** No data available.

**Respiratory Sensitization:** No data available.

**Skin Sensitization:** 1-Dodecene: Non-sensitizing in Buehler guinea pig test.

**Germ Cell Mutagenicity:** 1-Dodecene: Negative in Ames test, in vitro chromosome aberrations in rat liver cells, and mitotic gene conversion assay.

**Carcinogenicity:** None of the components of this product are listed as carcinogens by OSHA, IARC, NTP, ACGIH and the EU Dangerous Substances Directive.

**Reproductive Toxicity:** No test data is available.

**Specific Target Organ Toxicity:**
- Single Exposure: No data available
- Repeat Exposure: No test data is available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:
No ecotoxicity data is available. This product is not expected to be harmful to aquatic organisms.

12.2 Persistence and Degradability: 1-Dodecene: This product is expected to readily biodegradable.

12.3 Bioaccumulative Potential: No data available

12.4 Mobility in Soil: No data available

12.5 Results of PBT and vPvB Assessment: No data available

12.6 Other Adverse Effects: Not applicable

SECTION 13: DISPOSAL CONSIDERATIONS

<table>
<thead>
<tr>
<th>Prepared By:</th>
<th>Safety &amp; Environmental Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved By:</td>
<td>Safety &amp; Environmental Units</td>
</tr>
<tr>
<td>Issue/Revision Date:</td>
<td>E.7.6.3277.G / 9/12/13</td>
</tr>
</tbody>
</table>
13.1 Waste Treatment Methods:
Dispose in accordance with all local, state and federal regulations.

SECTION 14: TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>14.1 UN Number</th>
<th>14.2 UN Proper Shipping Name</th>
<th>14.3 Hazard Class(s)</th>
<th>14.4 Packing Group</th>
<th>14.5 Environmental Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>US DOT</td>
<td>NA1993</td>
<td>Combustible Liquid, n.o.s. (1-Dodecene) *</td>
<td>Combustible Liquid</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Canadian TDG</td>
<td>None</td>
<td>Not Regulated</td>
<td>None</td>
<td>None</td>
<td>Not applicable</td>
</tr>
<tr>
<td>EU ADR/RID</td>
<td>None</td>
<td>Not Regulated</td>
<td>None</td>
<td>None</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IMDG</td>
<td>None</td>
<td>Not Regulated</td>
<td>None</td>
<td>None</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IATA/ICAO</td>
<td>None</td>
<td>Not Regulated</td>
<td>None</td>
<td>None</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

*Excepted from HazMat in Non-Bulk Packaging

14.6 Special Precautions for User: Not applicable

14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environment Regulations/Legislation Specific for the Substance or Mixture:

U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: This product is not subject to reporting under CERCLA. Some states have more stringent reporting requirements. Report all spills in accordance with local, state, and federal regulations.

SARA TITLE III:

Hazard Category for Section 311/312: Acute Health, Fire Hazard

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

STATE REGULATIONS:

California Proposition 65: This product contains the following substances known to the State of California to cause cancer and/or reproductive toxicity: None

INTERNATIONAL REGULATIONS:

REACH: Brewer products comply with REACH regulation as applicable. For more information, contact the Brewer REACH coordinator.

SVHC: This product contains the following Substances of Very High Concern (SVHCs): None.

15.2 Chemical Safety Assessment: No data available

SECTION 16: OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Ratings:</th>
<th>Health - 2</th>
<th>Flammability - 2</th>
<th>Physical Hazard - 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared By:</td>
<td>Safety &amp; Environmental Units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approved By:</td>
<td>Safety &amp; Environmental Units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue/Revision Date</td>
<td>E.7.6.3277.0 / 9/12/13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NFPA Ratings: Health - 2    Flammability - 2    Instability - 0

SDS Revision History:
1/17/08: New SDS
2/18/09: Changed MSDS to SDS. Updated wording for carcinogen status, California Proposition 65, and CERCLA.
3/25/09: Updated Skin Protection statement in Section 8.
8/24/12: Updated All sections.
9/12/13: Updated format.

GHS Classification for Reference (See Sections 2 and 3):
Asp. Tox. Cat 1 Aspiration Hazard Category 1
Flam. Liq. Cat 4 Flammable Liquid Category 4
Skin Irrit. Cat 2 Skin Irritation Category 2
H227 Combustible liquid.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
EUC066 Repetent exposure may cause skin dryness or cracking.

EU Classes and Risk Phrases for Reference (See Sections 2 and 3):
Xn Harmful,
R38 Irritating to skin.
R65 Harmful: may cause lung damage if swallowed.
R66 Repeated exposure may cause skin drying or cracking.

This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Brewer Science, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.