SECTION 1 - MATERIAL IDENTIFICATION

Trade Name and Synonyms: Plicast Firehearth
Chemical Name and Synonyms: High Temperature Cement
Recommended Use: Refractory/Construction/maintenance/repair material

Product Number: 14034
Chemical/Mineral Family: Alumino Silicate

SECTION 2- HAZARDOUS IDENTIFICATION

Signal Word: Danger
Hazard statement:
H315: Causes skin irritation,
H351: Suspected of causing cancer
H335: May cause respiratory irritation
H373: May cause damage to lung through prolonged or repeated inhalation.

This product contains crystalline silica, a substance that has been listed by:

☑ 1. IARC: sufficient evidence for the carcinogenicity of crystalline silica to humans. (Group 1)
☑ 2. Canadian WHMIS : D2A - Materials Causing Other Toxic Effects
☑ 3. ACGIH: A2-Suspected Human Carcinogen.
☑ 4. NTP: a substance known to be a human carcinogen.

☑ Special Notes: *** Greater amounts of Quartz and Cristobalite may be formed after firing.

Precautionary Statements:
P260+P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P280 - Wear eye protection/face protection
P285 - Wear respiratory protection
P305+P351+P338 - If in eyes: Rinse cautiously with water.
P302+P352 - If on skin: Wash with plenty of soap and water.
P501- Dispose of material in accordance with local regulation.

Primary Route of Entry: Inhalation, Ingestion, Skin Contact
Target Organs: respiratory tract (nose & throat), eyes, skin

Potential Health Effects:
Eyes: May cause irritation. Abrasive action of dust can damage eye.
Skin: May cause irritation
Ingestion: May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain and diarrhea.
Inhalation: Effects of overexposure:
1. Acute: Exposure to nuisance dust may cause temporary irritation or discomfort to skin, eyes, nose, throat or lungs and may aggravate bronchial disorders.
2. Chronic: Long term inhalation of respirable quartz, cristobalite, fused silica and/or amorphous silica may cause silicosis (delayed lung injury) and other respiratory disorders. In addition there is sufficient evidence for the carcinogenicity of crystalline silica to humans.
SECTION 3- HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredients (checked)</th>
<th>C.A.S. No.</th>
<th>Weight %</th>
<th>TLV ACGIH mg/m³</th>
<th>OSHA PEL mg/m³</th>
<th>EINECS</th>
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</thead>
<tbody>
<tr>
<td>X Quartz***</td>
<td>14086-60-7</td>
<td>9.30</td>
<td>0.025(resp.dust)</td>
<td>10 mg/m³%SiO₂ +2 (resp)</td>
<td>238-878-4</td>
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<tr>
<td>X Cristobalite***</td>
<td>14464-46-1</td>
<td>9.15</td>
<td>0.025(resp.dust)</td>
<td>1/2(10 mg/m³%SiO₂ +2 (resp))</td>
<td>238-455-4</td>
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<tr>
<td>Amorphous Silica***</td>
<td>69012-64-2</td>
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<td>0.025(resp.dust)</td>
<td>Not Established</td>
<td>273-761-1</td>
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<tr>
<td>Fused Silica***</td>
<td>60676-86-0</td>
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<td>0.025(resp. dust)</td>
<td>80 mg/m³%SiO₂</td>
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<tr>
<td>Zirconium Silicate***</td>
<td>14940-68-2</td>
<td>10</td>
<td>15(total), 5(resp.)</td>
<td></td>
<td>239-019-6</td>
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<tr>
<td>Aluminum Phosphate</td>
<td>1350-50-2</td>
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<td>2 mg/m³TWA(as Al)</td>
<td>2 mg/m³TWA(as Al)</td>
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<td>Alumina</td>
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<td>1(resp.dust)</td>
<td>15(total), 5(resp.)</td>
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<td>Aluminosilicate(Mullite)</td>
<td>1302-93-8</td>
<td>67.77</td>
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<td>Aluminosilicate(Kyanite)</td>
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<td>Bauxite</td>
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<td>Silicon Carbide</td>
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<td>Pyrophylite</td>
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<td>Andalusite</td>
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<td>Calcium Aluminate Cement</td>
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<td>Organic Fiber</td>
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<td>0.05 - 0.5</td>
<td>10(total), 3(resp.)</td>
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</tbody>
</table>

SECTION 4- FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of water and get medical attention.
Skin: Wash with soap and water. Get medical attention if irritation develops or persists.
Ingestion: If swallowed, seek medical attention.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. Get immediate attention.
If symptoms persist, seek medical attention.

SECTION 5- FIRE FIGHTING MEASURES

Unusual Fire and Explosive Hazards: The product will not burn. Improper mixing and bake-out of materials may result in steam spalling during initial heating. Refer to mixing instructions and bake-out schedules for proper procedures.
Fire Fighting Equipment: Fire fighters should wear full protective gear and self-contained breathing apparatus-SCBA.

SECTION 6- ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled: Wear protective clothing as described in Section 8 of this sheet. Use routine housekeeping procedures, avoid dusting, collect material in closed containers or bags.
Waste Disposal Method: According to the EPA (40CFR 261.3) wastes are not hazardous wastes. Wastes may be disposed of in a landfill, however, in accordance with federal, state, and local regulations.

SECTION 7 - HANDLING AND STORAGE

To ensure product quality, store material in a dry place. Minimize dust generation and avoid inhalation and contact with refractory dusts during processing, installation, maintenance and tear-out. After handling of refractory dusts from processing, installation, maintenance or tear-out, wash exposed skin areas thoroughly. Wash clothing contaminated with dusts.
Waste Disposal Method: According to the EPA (40CFR261.3) wastes are not hazardous wastes. Wastes may be disposed of in a landfill, however, in accordance with federal, state, and local regulations. However, dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g. metals). Therefore, appropriate waste analysis may be necessary to determine proper disposal. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state and local regulations.

SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES

Appearance, Color & Odour: Granular aggregate & fine powder mix, tan in color, earthly smell
Solubility in Water: Negligible  pH: Alkaline  Vapor Pressure: Not applicable
Boiling Point (°C): N/A  Vapor Density: Not applicable
Melting Point (°C): 1800F / 982C  Evaporation Rate: Not applicable
Specific Gravity: 2.8  % Volatile by Weight: Not applicable

SECTION 10- STABILITY AND REACTIVITY DATA

Stability: Stable  Hazardous Polymerization: May not occur  Incompatibility: Materials to avoid: N/A
Hazardous Decomposition: N/A

SECTION 11 - TOXICOLOGICAL INFORMATION

Effects of overexposure:
1. Acute: Exposure to nuisance dust may cause temporary irritation or discomfort to skin, eyes, nose, throat or lungs and may aggravate bronchial disorders.
2. Chronic: Long term inhalation of respirable quartz, cristobalite, fused silica and/or amorphous silica may cause silicosis (delayed lung injury) and other respiratory disorders.
3. Prolonged contact with skin may cause irritation.

For crystalline silica (quartz/cristobalite):
CARCINOGENICITY: Product contains crystalline silica which may cause delayed respiratory disease (silicosis) if inhaled over a prolonged period of time. IARC concludes that "there is a sufficient evidence for the carcinogenicity of crystalline silica to humans." (Group 1).
For aluminum silicate: Aluminum silicate minerals have been found to cause lung fibrosis in the absence of crystalline silica.

SECTION 12 - ECOLOGICAL INFORMATION

No ecological concerns have been identified.
Not applicable for as-manufactured refractory product. Dusts of as-manufactured refractory product have a low order of aquatic toxicity (rating TLm96: over 1000 ppm), are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g. metal). Evaluation of dusts from specific processes should be performed by a qualified environmental professional to determine if an environmental threat exists in the case of a release.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Method: According to the EPA (40CFR261.3) wastes are not hazardous wastes. Wastes may be disposed of in a landfill, however, in accordance with federal, state, and local regulations. However, dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g. metals). Therefore, appropriate waste analysis may be necessary to determine proper disposal. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state and local regulations.
SECTION 14 - TRANSPORT INFORMATION

Canadian Transportation of Dangerous Goods Regulation: Hazard Class & PIN: Not Regulated
DOT Proper Shipping Name (29 CFR 172.101): Not regulated
DOT Hazard Class (29 CFR 172.101): Not regulated
UN/NA Code (49 CFR 172.101): Not applicable
DOT Labels Required (49 CFR 172.101): Not applicable
DOT Placards Required (49 CFR 172.504): Not applicable
Land Transport ADR/RID (cross-border): Not regulated
Maritime Transport IMDG : Not regulated
Air Transport ICAO-TI and IATA-DGR: Not regulated

SECTION 15 - REGULATORY INFORMATION

CANADIAN WHMIS: D2A
CANADIAN EPA: Components of this product are listed on the Domestic Substance List (DSL).
U.S. FEDERAL REGULATIONS:
SARA TITLE III: EPCRA Section 302 (EHSs):
This product does not contain ingredients subject to reporting requirements of 40 CFR Part 355, Appendices A and B (Extremely Hazardous Substances).
CERCLA Section 304:
This product does not contain ingredients subject to state and local reporting under Section 304 of SARA Title III as listed in 40 CFR Part 302, Table 302.4
SECTION 311/312 HAZARD CATEGORIES:
Product (airborne particulates) is categorized as an immediate (acute) health hazard and a delayed (chronic) health hazard as defined by SARA Title III Section 311/312 (40 CFR 370).
SECTION 313 TOXIC CHEMICALS: None
TSCA: Components of this product are listed on the TSCA Inventory.

SECTION 16 - OTHER INFORMATION

Only Trained personnel should use this material.

Abbreviations:
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act
DOT: Department of Transportation
EPA: Environmental Protection Agency
IARC: International Agency for Research on Cancer
NFPA: National Fire Protection Association
NIOSH: National Institute for Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
SARA: Superfund Amendment and Reauthorization Act
WHMIS: Workplace Hazardous Materials Information System (Canada)

DISCLAIMER
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