SECTION 1 - MATERIAL IDENTIFICATION

Trade Name and Synonyms: Plicast Al-Tuff 40
Product Number: 14142
Manufacturers Code I.D.: L - 2676
Chemical Name and Synonyms: High Temperature Cement
Chemical/Mineral Family: Alumina
Recommended Use: Refractory/Construction/maintenance/repair material

Manufacturer: Plibrico Company LLC
Supplier: Plibrico Company LLC
1010 N. Hooker Street, Chicago, Illinois 60642
Phone 312-337-9000; Fax 312-337-9003
www.plibrico.com

Contact Person: Tom Ervin, tervin@plibrico.com
EMERGENCY PHONE: 312-337-9000,
After 4:30PM weekdays, Weekends, and Holidays:
740-820-8746, 740-604-1033

SECTION 2- HAZARDOUS IDENTIFICATION

NFPA Rating scale 0-4
Flammability Health Instability Special

HMIS Rating
Health Flammability Physical Hazard Personal Protection
* 1 0 0 E

Signal Word: WARNING
Hazard statement: H373, may cause damage to lung through prolonged or repeated inhalation.
H315: Causes skin irritation,
H320: Causes eye irritation,
H335: May cause respiratory irritation

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 dust may cause lung injury and other respiratory disorders.
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>Quartz***</td>
<td>14808-60-7</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>Cristobalite***</td>
<td>14464-46-1</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>
<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>
<td>0.025(resp. dust)</td>
<td>80 mg/m³%SiO₂²</td>
<td>262-373-8</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>239-019-6</td>
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<tr>
<td>Aluminum Phosphate</td>
<td>13530-50-2</td>
<td>2 mg/m³ TWA(as Al)</td>
<td>2 mg/m³ TWA(as Al)</td>
<td>236-875-2</td>
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<tr>
<td>Alumina</td>
<td>1344-28-1</td>
<td>73 - 83</td>
<td>1(resp.dust)</td>
<td>15(total), 5(resp)</td>
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<td>Aluminosilicate(Mullite)</td>
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<td>2(resp.dust)</td>
<td>15(total), 5(resp)</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>15(total), 5(resp)</td>
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<tr>
<td>Pyrophyllite</td>
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<td>Spinel</td>
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<tr>
<td>Andalusite</td>
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<tr>
<td>Zirconiumdioxide</td>
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<tr>
<td>Calcium Aluminate Cement</td>
<td>65997-16-2</td>
<td>14. - 24.</td>
<td>10</td>
<td>15(total), 5(resp)</td>
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<td>Calcium Silicate Cement</td>
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<td>Clay</td>
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<td>Aluminum Sulfate</td>
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<td>Perlite</td>
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<tr>
<td>Titanium Oxide</td>
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<td>Organic Fiber</td>
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<td>0.05 - 0.5</td>
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<td>Calcium Fluoride</td>
<td>7789-75-5</td>
<td>1 - 5</td>
<td>2.5 as F</td>
<td>2.5 as F</td>
<td>232-188-7</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,
**SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION**


Respiratory Protection: Good ventilation should be provided if dust is created when working with materials. Used material, which is being removed, should be dampened to reduce dust. In addition, when dust is present, workers should employ respirator protection. Recommended: NIOSH approved respirator for dusts and mists, including silica, in compliance with OSHA STD 29.CFR1910.134.

Eye Protection: Safety glasses/goggles.

Other Protective Equipment: As required to meet applicable OSHA standards.

Note: See Section 3 for occupational exposure limit values.

**SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES**

Appearance, Color & Odour: Granular aggregate & fine powder mix, white in color, earthly smell

Solubility in Water: Negligible  
Boiling Point (o): N/A  
Melting Point (o): 3400F / 1871C  
Specific Gravity: 3.9

**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 dust may cause lung injury and other respiratory disorders.
- 3. Prolonged contact with skin may cause irritation.

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 15 - REGULATORY INFORMATION

CANADIAN WHMIS: D2B
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
The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Safety Data Sheet. Occupational exposure limits are under constant review and may be changed at any time. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of this product. This summary of the relevant data reflects professional judgment. Employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, Plibrico Company LLC does not extend any warranty (expressed or implied), assume any responsibility or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user. No warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use. In addition, Plibrico Company LLC shall not be liable for injury arising by either misuse of materials, or failure to follow safety procedures as outlined in the safety data sheet.