PLIBRICO COMPANY LLC

1010 N. Hooker Street, Chicago, Illinois 60642 Phone: (312) 337-9000 Fax: (312) 337-9003 www.plibrico.com

Revised Date: 10/19/2015 Supersedes: 1/22/2015



Safety Data Sheet

Trade Name and Synonyms: Plibrico 90-S $Al_2 O_3 = 89.7$ % SiO₂ - 5.8 %

Chemical Name and Synonyms: Refractory Plastic Fireclay

Recommended Use: Refractory/Construction/maintainence/repair material

Manufacturer: 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

Product Number: 10033

Manufacturers Code I.D. : L - 2496

Chemical/Mineral Family: Alumino Silicate

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

SECTION 2- HAZARDOUS IDENTIFICATION

Signal Word: Danger

Hazard statement: H315: Causes skin irritation, H320: Causes eye irritation

H335: May cause respiratory irritation H351: Suspected of causing cancer 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. Major portion of the crystalline silica present in the product as manufactured is not fine enough to normally be considered respirable.

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:

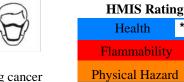
Eyes: May cause irritation. Abrasive action of dust can damage eye.

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.



0 0 Physical Hazard Е Personal Protection

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Trade Name and Synonyms:

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| SECTION 3- HAZARDOUS INGREDIENTS | | | | | |
|----------------------------------|------------|------------|--------------------------------|---|-----------|
| Ingredients (checked) | C.A.S. No. | Weight % | TLV ACGIH mg/m ³ | OSHA PEL mg/m ³ | EINECS |
| X Quartz*** | 14808-60-7 | 0.31 | 0.025(resp.dust) | 10 mg/m ³ /%SiO 2+2 (resp) | 238-878-4 |
| X Cristobalite*** | 14464-46-1 | 0.28 | 0.025(resp.dust) | $1/2(10 \text{ mg/m}^3/\% \text{SiO}_{2+2} \text{ (resp)})$ | 238-455-4 |
| Amorphous Silica*** | 69012-64-2 | | 0.025(resp.dust) | Not Established | 273-761-1 |
| Fused Silica*** | 60676-86-0 | | 0.025(resp. dust) | 80 mg/m ³ /%SiO 2 | 262-373-8 |
| Zirconium Silicate*** | 14940-68-2 | | 10 | 15(total), 5(resp.) | 239-019-6 |
| X Aluminum Phosphate | 13530-50-2 | 1 - 5 | 2 mg/m ³ TWA(as Al) | 2 mg/m ³ TWA(as Al) | 236-875-2 |
| X Alumina | 1344-28-1 | 52 - 62 | 1(resp.dust) | 15(total), 5(resp.) | 215-691-6 |
| Aluminosilicate(Mullite) | 1302-93-8 | - | 2(resp.dust) | 15(total), 5(resp.) | 215-113-2 |
| Aluminosilicate(Kyanite) | 1302-76-7 | - | 2(resp.dust) | 15(total), 5(resp.) | 215-106-4 |
| X Bauxite | 1318-16-7 | 23 33. | 10 | 15(total), 5(resp.) | |
| Silicon Carbide | 409-21-2 | - | 10 | 15(total), 5(resp.) | 206-991-8 |
| Pyrophyllite | 12269-78-2 | - | 10 | 15(total), 5(resp.) | |
| Spinel | 1302-67-6 | - | 10 | 15(total), 5(resp.) | 215-105-9 |
| Andalusite | 12183-80-1 | - | 10 | 15(total), 5(resp.) | 235-352-6 |
| Zirconiumdioxide | 1314-23-4 | - | 10 | 15(total), 5(resp.) | 215-227-2 |
| Calcium Aluminate Cement | 65997-16-2 | - | 10 | 15(total), 5(resp.) | 266-045-5 |
| Calcium Silicate Cement | 65997-15-1 | - | 10 | 15(total), 5(resp.) | 266-043-4 |
| Clay | 1332-58-7 | - | 2(resp.dust) | 15(total), 5(resp.) | 265-064-6 |
| Aluminum Sulfate | 10043-01-3 | - | 2(resp.dust) | 15(total), 5(resp.) | 233-135-0 |
| Barium Sulfate | 772-74-37 | - | 10 | 10(total), 5(resp.) | 231-784-4 |
| XBentonite | 1302-78-9 | 1.0 - 8.1 | 10 | 15(total), 5(resp.) | 215-108-5 |
| Perlite | 93763-70-3 | - | 10 | 15(total), 5(resp.) | 310-127-6 |
| Sodium Silicate | 1344-09-8 | - | 10 | 15(total), 5(resp.) | 215-687-4 |
| X Titanium Oxide | 13463-67-7 | 0.6 | 10 | 15(total), 5(resp.) | 215-280-1 |
| ☐ □Organic Fiber | 9003-07-0 | 0.05 - 0.5 | 10(total), 3(resp.) | 15(total), 5(resp.) | |

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.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

Ventilation: Local and Mechanical: follow OSHA STD 29 CFR 1910.94.

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

Protection Gloves: Protective gloves recommended.

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 solid mix, off white in color, acidic smell

Solubility in Water: <6%

Boiling Point (o): N/A

pH: 2 - 3

(50% Solution)

Hazardous Polymerization: May not occur

Melting Point (o): 3400F / 1871C

Specific Gravity: 3.4

SECTION 10- STABILITY AND REACTIVITY DATA

Stability: Stable

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 data/information have been available/identified in the following categories:

- 12.1 Toxicity
- 12.2 Persistence and degradability
- 12.3 Bioaccumulative potential

12.4 Mobility in Soil

- 12.5 Results of PBT and vPvB assessment
- 12.6 Other adverse effects: Ecological Fate: No data found
- 12.7 Other Information: No specific biodegradation test data located.

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.

A standards.

Incompatibility:

Revised Date: 10/19/2015



Vapor Pressure: Not applicable Vapor Density: Not applicable

Evaporation Rate: Not applicable

% Volatile by Weight: Not applicable

Materials to avoid: N/A

Trade Name and Synonyms:

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

Plibrico 90-S

DOT Proper Shipping Name (29 CFR 172.101): DOT Hazard Class (29 CFR 172.101): UN/NA Code (49 CFR 172.101): DOT Labels Required (49 CFR 172.101): DOT Placards Required (49 CFR 172.504): Land Transport ADR/RID (cross-border): Maritime Transport IMDG : Air Transport ICAO-TI and IATA-DGR: ation: Hazard Cla Not regulated Not regulated Not applicable Not applicable Not applicable Not regulated Not regulated 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:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

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 personel 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.