



## SAFETY DATA SHEET

### Section 1: Identification

**Product Identifier:** Refractory Hardboard Types BM-54, BM-65, BM-85.

**Other means of identification:** Calcium Silicate Cement Boards.

**Recommended use:** Thermal, structural and electrical insulation in high temperature thermal process systems. Also used extensively for molten non-ferrous metal contact applications.

**Supplier:**

ZIRCAR Ceramics, Inc.  
P.O. Box 519  
Florida, NY 10921  
[www.zircarceramics.com](http://www.zircarceramics.com)  
[sales@zircarceramics.com](mailto:sales@zircarceramics.com)  
(845) 651-6600

**Emergency Telephone Number:**

CHEMTREC: (800) 424-9300 (USA/Canada), (703) 527-3887 (International)

### Section 2: Hazards Identification

**Hazard Classification(s):** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). Carcinogenicity - Category 1A, Skin Irritant – Category 2, Eye Irritant – Category 2B

**Signal Words:** Danger, Warning



**Precautionary Statement(s):** May cause skin and eye irritation. May cause cancer.

**CAUTION:** Handling or machining of these products may produce respirable dust particles. Dust may irritate eyes, skin and respiratory tract.

**Inhalation:** Dust may cause irritation or soreness of throat and nose.

**Eye Contact:** Dust may cause temporary irritation or inflammation.

**Skin Contact:** May cause temporary dryness, irritation or rash.

**Ingestion:** Ingestion is unlikely. May cause gastrointestinal disturbances. Never induce vomiting without the advice of a physician.

**Medical Conditions Aggravated by Exposure:** Respiratory effects may be aggravated by smoking. Pre-existing respiratory problems may be aggravated by dust.

### Section 3: Composition / Information on Ingredients

#### Chemical and common names, CAS numbers and concentration

Chemical Name	Common Name	CAS Number	% by weight
Calcium Silicate	Calcium Silicate	1344-95-2	60 - 80
Calcium Metasilicate	Wollastonite	13983-17-0	20 - 40
Organic Fiber	Organic Fiber	65996-61-4	1 - 8
Glass Filiment	Fiberglass	65997-17-3	0 - 8
Crystalline Silica	Quartz	14808-60-7	0.1 - 2

### Section 4: First Aid Measures

**Inhalation:** Remove to fresh air. Rinse mouth to clear throat and expel dust. Blow nose to evacuate dust. Consult a physician if irritation persists.

**Eye Contact:** Products can be physical irritants to eyes. Do not rub eyes. Keep hands or contaminated body parts away from eyes. Remove contact lenses. Flush with water. If irritation persists, consult a physician.

**Skin Contact:** Products are irritants. Wash with soap and water. For dryness, a skin cream may be helpful. Do not apply anything to a rash. Consult a physician if irritation persists.

**Ingestion:** Drink plenty of water. Do not induce vomiting without advice of a physician. Seek medical attention.

**Note to Physicians:** Skin and respiratory effects are the result of temporary, mild mechanical irritation; exposure does not result in allergic manifestations.

### Section 5: Fire Fighting Measures

**Materials are not combustible.** Use extinguishing media suitable for type of surrounding fire.

### Section 6: Accidental Release Measures

**Spill Procedures:** Clean up procedures should minimize formation of airborne dusts. Remove dust by vacuuming using HEPA filtration where possible.

**Release into Air:** Prevent release of airborne particulates where possible. Do not blow dust around. Not a regulated hazardous substance. See Section 8 for appropriate engineering controls.

**Release into Water:** Release into water is not appropriate. Not a regulated hazardous substance.

### Section 7: Handling and Storage

**Storage:** These materials are stable and may be stored in a dry place indefinitely. Physical abrasion may produce small amounts of respirable dusts. See precautions/exposure limits under Section 8.

**Normal Use:** Materials are stable under normal use and are not expected to produce significant hazardous by-products or emissions.

**Machining and Cutting:** These materials may produce respirable and nuisance dusts when machined or cut. See Section 8 for exposure controls and personal protection during machining or installation procedures.

**High Temperature Conditions:** Service significantly above the product design temperature may increase friability and the possibility of generating airborne fibers or particulates. While not considered problematic during use, airborne fibers may complicate removal activities. It is recommended that product use be carefully matched to design parameters.

**After Service:** As manufactured this product is comprised of calcium silicate and silica which may transform upon heating (temperatures greater than 1100°C for extended periods of time) to cristobalite (CAS # 14464-46-1), a form of crystalline silica. Removal of this product after use may generate dusts. Repeated inhalation of respirable free crystalline silica dust may cause delayed lung injury (silicosis). The IARC working group concluded that crystalline silica, in the form of quartz or cristobalite, from occupational sources posed a carcinogenic risk to humans (category 1). There is sufficient evidence of carcinogenicity in animals, but limited evidence in humans. Adequate ventilation and respiratory protection should be provided in compliance with OSHA standards. Adherence to recommended safe work practices is advised. Product removal must consider the possibility of usage above design temperatures.

Section 8: Exposure Controls / Personal Protection

**Exposure Limits**

Calcium Silicate	
ACGIH PEL as 8 hr TWA	10 mg/m <sup>3</sup>
Calcium Metasilicate	
ACGIH PEL as 8 hr TWA	3 mg/m <sup>3</sup>
Crystalline Silica	
OSHA PEL as 8 hr TWA	10 mg/m <sup>3</sup>
ACGIH PEL as 8 hr TWA	0.025 mg/m <sup>3</sup>

**Appropriate Engineering Controls:** Use dust suppression controls. Local exhaust ventilation, point of generation dust collection and/or down-draft work stations to minimize airborne dust generation are recommended when machining product.

**Recommendations for Personal Protective Measures**

Respiratory Protection:	Use appropriate protection pursuant to OSHA 29CFR 1910.134 and 29CFR 1926.103. The following information is provided as a guide and reflects industry recommendations for control of dust.
PPE < 1.0 f/cc	No specific recommendation, use personal protective equipment based on local conditions.
PPE 1.0 f/cc to 5.0 f/cc	Half-face, air purifying respirator equipped with a high efficiency particulate air (HEPA) filter cartridge.
PPE 5.0 to 25 f/cc	Full-face, air purifying respirator equipped with a high-efficiency particulate air (HEPA) filter cartridge
PPE > 25 f/cc	Full-face, positive pressure, supplied air respirator.
PPE Other	Work clothes should be washed separately and the washing machine rinsed following use. If possible, do not take work clothes home following machining or removal activities that produce significant amounts of dust.
Skin Protection	Wear gloves, head coverings and full body clothing to prevent skin irritation. Disposable clothing may be used. Store work clothes and street clothes separately.
Eye Protection	Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses without goggles. Do not get dust or liquids into eyes. Have eye washing facilities available when using products.

These Products are generally not hazardous during normal use. These guidelines are provided for special circumstances involved in machining use and or after service removals. See Section 7 for after service and Section 13 for disposal recommendations.

## Section 9: Physical and Chemical Properties

### Physical and Chemical Properties

Appearance		Odor	pH	Melting Point	Specific Gravity
Physical State	Color				
Solid boards.	Light to Dark Gray	Odorless	N/A	>1260°C (2300°F)	1.3 – 1.5

Note: The organic components in these products will begin to decompose at approximately 200C and will be completely decomposed at 450C. Freezing point, initial boiling point and boiling range, flash point, evaporation rate, flammability, upper/lower flammability or explosive limits, vapor pressure, vapor density, partition coefficient: n-octanol/water, auto-ignition temperature, decomposition temperature and viscosity are irrelevant and/or unavailable to/for these materials.

## Section 10: Stability and Reactivity

**Chemical Stability:** Materials are stable with no possibility of hazardous reactions or polymerization.

**Chemical Incompatibilities:** Powerful oxidizers; fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, etc.

**Hazardous Decomposition Products:** Crystalline silica will dissolve in hydrofluoric acid and produce silicon tetrafluoride, a corrosive gas.

## Section 11: Toxicological Information

### Exposure Routes and Effects

**Inhalation:** Dust may cause temporary irritation or soreness of throat and nose. Dust should not be inhaled as it may cause permanent lung injury (silicosis).

**Eye Contact:** Dust may cause temporary irritation or inflammation.

**Skin Contact:** May cause temporary dryness, irritation or rash.

**Ingestion:** Ingestion is unlikely. May cause gastrointestinal disturbances. Never induce vomiting without the advice of a physician.

**Medical Conditions Aggravated by Exposure:** Respiratory effects may be aggravated by smoking. Pre-existing respiratory problems may be aggravated by dust.

Toxicology : Carcinogenicity

Crystalline Silica: Crystalline silica – long term overexposure may cause permanent and irreversible lung damage, including silicosis, and increase the risk of lung cancer, kidney, and liver damage. Silicosis is a rapidly progressive, non-cancerous lung disease that is often fatal.	
IARC	014808-60-7 Silica dust, crystalline, in the form of for Research on Cancer) quartz or cristobalite - Group 1 (Sup 7, 68,100C, 2012)
National Toxicology Program (NTP) Report on Carcinogens	Silica, Crystalline (Respirable Size) – Known To Be Human Carcinogen
Carcinogenicity by ACGIH	Group A4: Not classifiable as a human carcinogen
OSHA	Crystalline Silica classified as a Category 1A Carcinogen

**Description of Symptoms:** See Exposure Routes and Effects, Hazard Statement(s) and Precautionary Statement(s) sections above.

Section 12: Ecological Information

**Eco toxicological Information:** No information available.

**Distribution:** Most of the ingredients in this product are naturally occurring minerals, and, unless contaminated in service, are not hazardous to the environment.

**Chemical Fate Information:** The relative inertness of these materials indicates that they may be highly persistent in the environment. No information regarding any negative effects of this persistence has been noted.

Section 13: Disposal Consideration

**Disposal:** Consult with local, state and federal regulations. In most cases these materials may be land filled safely. Refer to Section 8 for instructions regarding Exposure Controls/Personal Protection.

**Hazardous Waste Classification:** Materials are not regulated hazardous materials.

**Empty Containers:** Empty containers may contain product dust or residue. Do not re-use.

Section 14: Transportation Information

Materials are not regulated hazardous substances, no specific regulations apply.

**Section 15: Regulatory Information**

**Regulated Constituents: No component ingredients are listed with US Federal, State and Local or any other International lists.**

**Section 16: Other**

**Disclaimer:**

The information contained herein is based on data considered to be accurate as of the preparation or revision date. It is provided in good faith and in compliance with state and federal regulations. No warranty or representation, express or implied is made as to the accuracy or completeness of this information. Other national, state and/or local regulations may apply.