



Material Safety Data Sheet

Prepared in compliance with OSHA 29 CFR 1910.1200, ANSI Z400.1 and WHMIS regulations

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Trade Name BNZ[®] Insulating Fire Brick (All Grades)
Synonym(s) Insulating fire brick (IFB)
Product Use Refractory linings; back-up insulation

MSDS No. BNZ 10-101
Revision No. 02
Issue Date June 11, 2012

Manufacturer BNZ Materials, Inc.
6901 S. Pierce St, Suite 260
Littleton, CO 80128 U.S.A.
Telephone No. 1-800-999-0890

For Chemical Spills and
24-hr. Emergency Information
CHEMTREC 1-800-424-9300
Outside the US Call 1-703-741-5500

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Conc. (%)	ACGIH-TLV	OSHA-PEL
Ceramic matrix	Proprietary	60 - 98	3 mg/m ³	5 mg/m ³
Crystalline silica (quartz)	14808-60-7	0.1 - 20	0.025 mg/m ³	10 mg/m ³ /(%SiO ₂ +2)
Crystalline silica (cristobalite)	14464-46-1	0 - 20	0.025 mg/m ³	5 mg/m ³ /(%SiO ₂ +2)

Notes: (1) TLV and PEL values are 8-hour time-weighted averages for respirable dust, unless otherwise specified. (2) * = total dust

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Contains crystalline silica, a chronic health hazard by inhalation. Prolonged exposure to crystalline silica dust may cause permanent and irreversible lung damage, including silicosis, and increased risk of lung cancer, kidney and liver damage. Silicosis is a rapidly progressive, non-cancerous lung disease that is often fatal. Symptoms include shortness of breath, cough, fever, weight-loss and chest pain.

Crystalline silica, inhaled in the form of quartz and/or cristobalite, has been classified as a known human carcinogen (Group 1) by the International Agency for Research on Cancer (IARC), and as a suspected human carcinogen (Group 2A) by the Association of Governmental Industrial Hygienists (ACGIH).

NFPA Rating Health 1 Fire 0 Reactivity 0 Special Hazard 0

HMIS Rating Health 2 Fire 0 Reactivity 0 PPE Code E

Hazard Category Acute (Immediate) Health Hazard; Chronic (Delayed) Health Hazard

Routes of Entry Lungs and respiratory system via respirable dust (inhalation), and eyes via coarse dust and particulates.

Target Organs Lungs, respiratory system, and eyes.

SECTION 3 HAZARDS IDENTIFICATION**Signs and Symptoms of Overexposure**

Inhalation	Respirable airborne particulates may cause transitory irritation to the lungs and upper respiratory system. Symptoms of overexposure may include shortness of breath, coughing and chest pain.
Skin Contact	Long-term exposure to product dust may cause dryness and/or irritation.
Eye Contact	Product dust is a mechanical irritant which may cause moderate to severe eye irritation and dryness.
Ingestion	Non-hazardous when ingested. May cause mild irritation to the gastro-intestinal (GI) tract and mouth if excessive quantities are ingested.
Medical Conditions Aggravated by Exposure	Medical conditions aggravated by exposure to this product include dry skin, dermatitis, and pre-existing chronic upper respiratory and lung diseases (i.e., bronchitis, emphysema and asthma). Cigarette smoking may increase the risk of silicosis, bronchitis, pneumoconiosis and lung cancer in persons exposed to crystalline silica.

SECTION 4 FIRST AID MEASURES

Inhalation	Remove to fresh air. Drink plenty of water, and blow nose to evacuate remaining dust. If coughing and irritation develop seek medical attention.
Eye Contact	Flush with large amounts of water until irritation subsides, at least 15 minutes. Seek medical attention if irritation persists.
Skin Contact	Perform normal, good hygiene practices. Wash with mild soap and warm water after each exposure.
Ingestion	Emergency first-aid procedures are not normally required following ingestion. However, this product may cause temporary irritation to the gastro-intestinal (GI) tract and mouth if excessive quantities are ingested.

SECTION 5 FIRE FIGHTING MEASURES**Flammable Properties and Explosive Limits**

Flash Point	Non-flammable.	Upper Flam. Limit	Not applicable.
Autoignition	Not applicable.	Lower Flam. Limit	Not applicable.
Extinguishing Media	Dry chemical, carbon dioxide (CO ₂), water fog, or foam.		
Fire and Explosion Hazard	This product is non-flammable and does not pose a significant fire or explosion hazard.		
Hazardous Products of Combustion	During initial exposure to service temperatures, smoke may be emitted which can cause transitory irritation to the lungs and upper respiratory system.		
Special Firefighting Equipment	No special firefighting equipment is necessary. Use extinguishing media appropriate for the surrounding fire. Firefighters should wear protective clothing and use a self-contained breathing apparatus (SCBA).		

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions	If dusty conditions exist (i.e., during cutting, sanding or milling), wear a NIOSH-approved dust mask, such as the 3M 8511 N-95 or equivalent.
Environmental Precautions	Environmental precautions are not normally required. This product does not pose a significant threat to the environment.
Clean-Up Procedures	Before clean-up, wet down dust and debris with a fine water spray to suppress airborne particulates. Pick up, shovel or sweep material into an approved waste disposal container. Use equipment fitted with a high-efficiency particulate (HEPA) filter to vacuum clean dust.

SECTION 7 HANDLING AND STORAGE

Handling Precautions	Bricks do not present a hazard in their intact state. Assure proper respiratory protection during cutting, milling or sanding, or if the dust potential exceeds the established TLV/PEL. Refer to Exposure Controls and Personal Protection in Section 8 for further information.
Storage Requirements	Store in a cool, dry, well ventilated area away from food and beverages. Keep away from reactive materials and always separate materials by hazard class. Refer to Stability and Reactivity in Section 10 for incompatibility information and conditions to avoid.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls	Maintain sufficient mechanical or natural ventilation to assure dust concentrations remain below the established TLV/PEL. Use local exhaust if necessary. Power equipment used during cutting, sanding or milling should be fitted with a properly designed dust collection device.
Respiratory Protection	Wear a NIOSH-approved dust mask (i.e., 3M 8511 N-95 or equivalent) to limit exposure to product dust. Respiratory selection should be based on the level of exposure as measured by dust sampling. Concentrations that exceed the recommended dust mask limits may require a higher level of protection, such as a half-mask respirator with appropriate dust filters.



Eye Protection	Wear safety glasses with side shields, goggles or face-shield when cutting, milling or sanding to protect eyes from dust and airborne particulates. Selection and use of eye protection should comply with ANSI Z87.1-1-1989 and applicable OSHA standards.
-----------------------	---



Skin Protection	Under normal conditions, protective gloves and a clean body covering are sufficient. Direct skin contact with dust and debris can be further minimized by wearing long-sleeved shirts and long trousers.
------------------------	--



SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical Form	Solid blocks of various size	Odor	No characteristic odor
Color	Off-white to gray	Odor Threshold	Not available.
Specific Gravity	1.5 – 1.7	pH	Not available.
Boiling Point	Not available.	Density @ 68° F (20° C)	Not available.
Melting Point	> 2300° F (1260° C)	Vapor Pressure	Not available.
Evaporation Rate	Not available.	% Volatile by Vol. / Wt.	Not available.
Solubility in Water	Insoluble	Viscosity	Not available.

SECTION 10 STABILITY AND REACTIVITY

Stability	This product is stable under normal conditions of use.
Incompatibility	Crystalline silica is incompatible with hydrofluoric acid, fluorine, chloride trifluoride and oxygen difluoride.
Conditions to Avoid	Avoid strong acids and ammonium salts. Contact with powerful oxidizing agents (i.e., fluorine, chlorine trifluoride) may present a fire hazard.
Hazardous Polymerization	Hazardous polymerization will not occur.
Hazardous Products of Decomposition	Crystalline silica will dissolve in hydrofluoric acid and produce silicon tetrafluoride, a corrosive gas.

SECTION 11 TOXICOLOGICAL INFORMATION

Toxicological Hazards	This product contains crystalline silica. Long-term overexposure to respirable crystalline silica 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.
Carcinogenicity	Crystalline silica, inhaled in the form of quartz and/or cristobalite, has been classified as a known human carcinogen (Group 1) by the International Agency for Research on Cancer (IARC), and as a suspected human carcinogen (Group 2A) by the Association of Governmental Industrial Hygienists (ACGIH).
Sensitization	This product is not considered a sensitization hazard.
Teratogenic Effects	This product is not considered a teratogenic hazard.
Mutagenic Effects	This product is not considered a mutagenic hazard.
Reproductive System Toxicity	This product is not considered hazardous. Reproductive system effects are not expected to occur.

SECTION 12 ECOLOGICAL INFORMATION

Ecotoxicity	Unless contaminated in service, this product is not considered hazardous to aquatic life.
--------------------	---

SECTION 12 ECOLOGICAL INFORMATION**BOD5 / COD** No additional information is available.**Products of Biodegradation** No additional information is available.**SECTION 13 DISPOSAL CONSIDERATIONS****Disposal Method** May be disposed in an approved landfill in accordance with local, state and federal regulations. If this product has become contaminated in service, place in an approved hazardous waste container. Seal and properly label the container, and send to a Transportation, Storage and Disposal (TSD) facility via an approved waste hauler.**SECTION 14 TRANSPORTATION INFORMATION****U.S. Department of Transportation (DOT)****Shipping Name** Not a U.S. Department of Transportation (DOT) controlled substance.**Hazard Class** Not applicable.**UN/NA Number** Not applicable.**Label / Placard** Not applicable.**Packing Group** Not applicable.**Special Provisions** This product does not require special transport provisions.**SECTION 15 REGULATORY INFORMATION****TSCA Inventory** All ingredients are listed on the Toxic Substances Control Act (TSCA) inventory.**California Proposition 65** This product contains the following substances known to the State of California to cause cancer: Crystalline silica**State RTK Lists** Crystalline silica (quartz), (CAS No.: 14808-60-7): MA, MN, NJ, PA, RI
Crystalline silica (cristobalite), (CAS No.: 14464-46-1): MA, MN, NJ, PA, RI**CERCLA Reportable Quantity (RQ)** Does not contain any hazardous substances in excess of the CERCLA de minimis reportable quantity.**Superfund Amendments and Reauthorization Act (SARA) Title III****Section 302 / 304** This product does not contain any Extremely Hazardous Substances (EHS) as defined and listed under SARA Title III, Sections 302 and 304.**Section 311 / 312** This product meets the following EPA Hazard Categories as defined and listed under SARA Title III, Sections 311 and 312:

<u>Acute Hazard</u>	Yes
<u>Chronic Hazard</u>	Yes
<u>Fire Hazard</u>	No
<u>Reactivity Hazard</u>	No
<u>Pressure Hazard</u>	No

Section 313 This product does not contain any substances subject to the reporting requirements of SARA Title III, Section 313.

SECTION 15 REGULATORY INFORMATION**Other Regulatory Classifications**

DSL (Canada) All ingredients are listed, or exempt from inclusion, on the Canadian Domestic Substances List (DSL).

WHMIS (Canada) Class D-2A: Material causing other toxic effects. Very Toxic – Chronic



This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16 OTHER INFORMATION

Reason for Issue	WHMIS update	Issue Date	June 11, 2012
Prepared By	Compliance Consulting Group (CCG) EH&S Services for BNZ Materials, Inc.	Supersedes Date	July 15, 2008
Revision History	June 11, 2012: WHMIS CPR compliance statement added to Section 15; new categories added to Section 11; Emergency overview text modified; ACGIH-TLV for crystalline silica changed to 0.025 mg/m ³ . July 15, 2008: WHMIS update; format revision; MSDS numbering convention.		

DISCLAIMER

BNZ Materials, Inc. (BNZ) believes the information contained in this Materials Safety Data Sheet (MSDS) to be accurate and reliable as of the date of issue, and is provided in good faith as a service to our customers and to comply with applicable Federal and State laws. This document is intended as a guide for the safe handling, storage and use of this material under normal conditions of use. No representation, warranty or guarantee, either express or implied, is intended or given. BNZ does not accept liability for any loss, injury or damage resulting from the use of this product.