BNZ Materials, Inc.

# SAFETY DATA SHEET

## Section 1. Identification

**GHS product identifier:** **BNZ Insulating Fire Brick**
**All Grades**

**Other means Of identification:** Insulating Fire Brick, IFB

**Product type:** Refractory Brick

**SDS No.:** BNZ-10-101

**Relevant identified uses of the substance or mixture and uses advised against:**

**Identified uses:** Refractory lining, back-up insulation

**Uses advised against:** None known

---

**Supplier:**

**BNZ Materials, Inc.**
**6901 S. Pierce St., Suite 260**
**Littleton, CO 80128**

**Technical Support: 800-955-8650**
**www.bnzmaterials.com**

**Emergency telephone Number:** CHEMTREC - 800-424-9300 or 703-741-5970 (Outside USA and Canada – collect calls accepted). 24 Hour service.

## Section 2. Hazards Identification

**OSHA/HCS status :** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Classification of the substance or mixture:** CARCINOGENICITY - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (STOT) REPEATED EXPOSURE – Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 0%

**GHS label elements**
**Hazard pictograms:**



**Signal word:** Danger

**Hazard statements:** **If dust is present:**
May cause cancer.
Causes damage to lungs through prolonged or repeated exposure.

**Precautionary statements**

**Prevention:** **If dust is present:**
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe dust.
P264: Wash thoroughly after handling.
P270: Do not eat, drink, or smoke while using this product.
P280: Wear protective gloves, protective clothing, eye protection, face protection

**Response:** P308+P313: If exposed or concerned: Get medical advice/attention.

**Storage:** P405: Store locked up.

**Disposal:** Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplementary Information** Use precautions if exposure exceeds the established OSHA limits.
This material does not present a hazard unless dust is generated from processing operations.

**Hazards not otherwise Classified** None known

## Section 3. Composition/Information on Ingredients

**Substance or mixture:** Mixture

**Other means of: identification** Insulating Fire Brick, IFB

**CAS number/other identifiers**
**CAS number :** Mixture
**Product code :** BNZ Insulating Fire Brick

| Ingredient name | CAS number | % |
|---|---|---|
| Ceramic Matrix | Proprietary | 60 – 98 |
| Product contains: | | |
| Crystalline Silica | 14808-60-7 | 0.1 – 46 |
| Crystalline Silica (cristobalite) | 14464-46-1 | 0.1 – 22 |

Any concentration shown as a range it to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First Aid Measures

**Description of necessary first aid measures**

**Inhalation:** Remove victim to fresh air.
Drink plenty of water and blow nose to evacuate remaining dust.
If coughing or irritation persist seek medical attention.

**Eye contact:** Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.
Check for and remove any contact lenses.
Rinse for at least 15 minutes.
If irritation persists seek medical attention.

**Skin contact:** Gently wash with plenty of soap and water.
If irritation persists seek medical attention.

**Ingestion** Emergency procedures not normally required.
If prolonged irritation to gastrointestinal tract or mouth persist seek medical attention.

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

**Inhalation :** Respirable airborne particles may cause temporary irritation to the lungs and upper respiratory system.

**Skin contact:** Prolonged exposure may cause dryness or irritation to the skin.

**Eye contact:** Will cause mechanical irritation to the eyes. May cause moderate to severe eye irritation and dryness.

**Ingestion:** May cause irritation to gastrointestinal tract or mouth.

**Over-exposure signs/symptoms**

**Inhalation:** Adverse symptoms may include the following:
Irritation

**Eye contact:** Adverse symptoms may include the following:
Irritation
Dryness

**Skin contact:** Adverse symptoms may include the following:
Irritation
Dryness

**Ingestion:** Adverse symptoms may include the following:
Irritation
Stomach pains

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to physician:** Medical conditions which may be aggravated by exposure include dry skin, dermatitis, and pre-existing lung conditions such as bronchitis, emphysema, and asthma.

**Specific treatments:** No specific treatment.

**Protection of first-aiders:.** No action shall be taken involving any personal risk or without suitable training
Wear a suitable NIOSH-approved dust mask if airborne dust is present.
Wash contaminated clothing before re-use.

## Section 5. Firefighting Measures

**Specific hazards arising from the chemical:** None known other than those represented elsewhere in this SDS.

**Hazardous thermal decomposition products** Decomposition products may include the following materials:

- Crystalline Silica

During initial exposure to service temperatures, smoke may be emitted which can cause transitory irritation to the lungs and upper respiratory system.

**Special protective actions for firefighters** Material will not burn.
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire.
No action shall be taken involving any personal risk or without suitable training.
No special firefighting equipment is necessary.

**Special protective equipment for fire-fighters** Firefighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency Personnel** No action shall be taken involving any personal risk or without suitable training.
Evacuate surrounding areas.
Keep unnecessary and unprotected personnel from entering.
Provide adequate ventilation.
Wear appropriate respirator when ventilation is inadequate.
Put on appropriate personal protective equipment.

**For emergency responders** If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** This material does not pose a significant threat to the environment.

Avoid dispersion of material and runoff and contact with waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, or air)

**Methods and materials for containment and cleaning up**

**Small spill**

Stop source of spill .
Avoid creating airborne dust
Use dust suppressant as necessary
Place material into closed waste disposal container.
Any sweeper or vacuum should be equipped with High Efficiency Particulate (HEPA) filter.
Dispose of using a licensed waste disposal contractor.

**Large spill**

Stop source of spill.
Avoid creating airborne dust
Use dust suppressant as necessary
Place material into closed waste disposal container.

Any sweeper or vacuum should be equipped with High Efficiency Particulate (HEPA) filter.
Dispose of using a licensed waste disposal contractor.
Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

## Section 7. Handling and Storage

**Protective measures for safe handling**

**Protective Measures:**

Minimize dust generation
Use appropriate respiratory protection if dust is present above the established exposure limits.
If dusty conditions exist (such as during cutting, sanding, or milling) use engineering controls and/or respiratory protection (See Section 8).

**Advice on general occupational hygiene**

Eating and smoking should be prohibited in areas where this material is handled, stored and processed.
Workers should wash hands and face before eating and smoking.
Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities**

Store in accordance with local regulations.
Store in original container in a dry area, away from incompatible materials (see Section 10) and food and drink.

## Section 8. Exposure Controls/Personal Protection

**Control parameters**

**Occupational exposure limits:**

US Occupational Safety and Health Administration Permissible Exposure Limit (OSHA PEL):

| | |
|---|---|
| Irritant (Nuisance) Dust: | 5 mg/m$^3$ |
| Crystalline Silica | |
| Permissible Exposure Limit | 50 µg/m$^3$ |
| Action Level | 25 µg/m$^3$ |

*(See 29 CFR 1910.1053, effective June 23, 2018. Regulation contains additional requirements, including written exposure plan, medical exams, training, and recordkeeping.)*

American Conference of Governmental and Industrial Hygienists Threshold Limit Value (ACGIH TLV®):

| | |
|---|---|
| Irritant (Nuisance) Dust: | 3 mg/m$^3$ |
| Crystalline Silica | 0.025 mg/m$^3$ |

*Note: TLV® and PEL values are for eight hour exposures, unless noted.*

**Appropriate Engineering controls:** If user operations generate dust, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Power equipment should be fitted with a properly designed dust collection device.

**Environmental Exposure controls:** Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.
In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Hygiene Measures:** Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
Appropriate techniques should be used to remove potentially contaminated clothing.
Wash contaminated clothing before reusing.
Ensure that eyewash stations and safety showers are close to the workstation location.

**Respiratory Protection:** Wear a NIOSH-approved dust mask to limit exposure to product dust.
Higher dust levels may require use of a half or full mask respirator with dust filters.

Use local exhaust if necessary to lower dust levels.
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Eye/Face Protection:** Wear safety glasses with side shields or goggles complying with an approved standard to avoid exposure to dust.

**Hand Protection:** Protective gloves should be worn when handling and to avoid abrasion or drying of skin.

**Body Protection:** Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

**Other Skin Protection:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved.

## Section 9. Physical and Chemical Properties

**Appearance**

| | |
|---|---|
| **Physical State** | Solid Blocks of various size |
| **Color** | Off-white to gray |
| **Odor** | None |
| **Odor Threshold** | Not Applicable |
| **pH** | Not Applicable |
| **Melting Point** | > 2300 °F (1260 °C) |
| **Boiling Point** | N/A |
| **Flash Point** | None |
| **Burning Time** | Not applicable |
| **Specific Gravity** | 1.5 – 1.7 |
| **Burning Rate** | Not applicable |
| **Evaporation Rate** | 0 (butyl acetate = 1) |
| **Flammability (solid, gas)** | Not applicable |
| **Lower Explosive (flammable) Limit** | Not available |
| **Upper Explosive (flammable) Limit** | Not available |
| **Vapor Pressure** | Not applicable |
| **Vapor Density** | Not applicable |
| **Relative Density** | Not available |
| **Solubility** | Insoluble |
| **Solubility in Water** | Insoluble |
| **Partition coefficient: n-octanol/water** | Not available |
| **Auto-ignition Temperature** | Not available |
| **Decomposition Temperature** | Not available |
| **SADT** | Not available |
| **Viscosity** | Not available |

## Section 10. Stability and Reactivity

**Reactivity:** This product is normally not reactive.

**Chemical stability:** The product is stable.

**Possibility of Hazardous Reactions:** Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.

**Conditions to Avoid:** Avoid strong acids and ammonium salts. Contact with strong oxidizing agents (such as fluorine, chlorine trifluroride) may present a fire hazard.

**Incompatible Materials:** Reactive or incompatible with the following materials:
Hydrofluoric acid, fluorine, chlorine trifluoride, oxygen difluoride

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

## Section 11. Toxicological Information

**Information on toxicological effects**

**Acute toxicity**

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| None Known | -- | -- | -- | -- |
| | -- | -- | -- | -- |

**Irritation/Corrosion:** Not available

**Sensitization** Not available

**Mutagenicity** Not available

**Carcinogenicity**: Not available

**Reproductive toxicity** Not available

**Teratogenicity** Not available

**Specific target organ toxicity (single exposure)** Not available

**Specific target organ toxicity (repeated exposure)** This material contains Crystalline Silica, which is known to cause silicosis. Silicosis is a rapidly progressive, non-cancerous lung disease that is often fatal.

**Aspiration hazard** Not available

**Information on the likely routes of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

**Inhalation :** Respirable airborne particles may cause temporary irritation to the lungs and upper respiratory system.

**Skin contact:** Prolonged exposure may cause dryness or irritation to the skin.

**Eye contact:** Will cause mechanical irritation to the eyes. May cause moderate to severe eye irritation and dryness.

**Ingestion:** May cause irritation to gastrointestinal tract or mouth.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Inhalation:** Adverse symptoms may include the following:
Irritation

**Eye contact:** Adverse symptoms may include the following:
Irritation
Dryness

**Skin contact:** Adverse symptoms may include the following:
Irritation
Dryness

**Ingestion:** Adverse symptoms may include the following:
Irritation
Stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure**

**Potential immediate effects:** Not available.

**Potential delayed effects :** Not available.

**Long term exposure**

**Potential immediate effects:** Not available.

**Potential delayed**

**effects :** Not available.

**Potential chronic health effects:** Not available

**General:** No other known significant effects or critical hazards.

**Carcinogenicity:** 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 (International Agency for Research on Cancer)** | 014808-60-7 Silica dust, crystalline, in the form of 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 |
| **OSHA:** | Crystalline Silica classified as a Category 1A Carcinogen |

**Mutagenicity:** No known significant effects or critical hazards.
**Teratogenicity:** No known significant effects or critical hazards.
**Developmental:** No known significant effects or critical hazards.
**Fertility effects:** No known significant effects or critical hazards.

**Numerical measures of toxicity**
**Acute toxicity estimates**
Not available.

## Section 12. Ecological Information

**Toxicity** Not available.

**Persistence and Degradability:** Not available.

**Bioaccumulative Potential:** Not available.

**Mobility in soil**

**Soil/water partition coefficient ($K_{OC}$):** Not available

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

## Section 13. Disposal Considerations

**Disposal methods:** The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.
Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
This material and its container must be disposed of in a safe way.
Care should be taken when handling emptied containers that have not been cleaned or rinsed out.
Empty containers or liners may retain some product residues.
Avoid dispersal of spilled material and runoff and contact with waterways, drains and sewers.

## Section 14. Transport Information

| | DOT Classification | TDG Classification | IMDG | IATA |
|---|---|---|---|---|
| UN Number | Not Regulated | Not Regulated | Not Regulated | Not Regulated |

**Special precautions for user:**

**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage

## Section 15. Regulatory Information

**U.S. Federal regulations**

**TSCA 8(a) CDR Exempt/Partial exemption**: Not applicable
**United States inventory (TSCA 8b)**: This material is listed.

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs):** Not listed

**Clean Air Act Section 602 Class I Substances:** Not listed

**Clean Air Act Section 602 Class II Substances:** Not listed

**DEA List I Chemicals**

**(Precursor Chemicals):** Not listed

**DEA List II Chemicals**
**(Essential Chemicals):** Not listed

**SARA 302/304**
**Composition/information on ingredients:** No products were found.

**SARA 304 RQ:** Not applicable.

**SARA 311/312**
**Classification :**

**Composition/information on ingredients:**

| Name | % | Immediate (acute) Health Hazard | Delayed (chronic) Health Hazard | Fire Hazard | Reactivity Hazard | Sudden Release of Pressure |
|---|---|---|---|---|---|---|
| Ceramic Matrix | 60 – 98 | No | No | No | No | No |
| Crystalline Silica (Quartz) | 0.1 – 46 | Yes | Yes | No | No | No |
| Crystalline Silica (cristobalite) | 0.1 – 22 | Yes | Yes | No | No | No |

**Section 313 listed:** No
**Listed material/compound:** Not Applicable

**State regulations**
**New York:** Crystalline Silica
**New Jersey:** Crystalline Silica
**Pennsylvania:** Crystalline Silica
**Massachusetts**: Crystalline Silica
**Rhode Island:** Crystalline Silica
**California Prop. 65:** Crystalline Silica

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

**WHMIS 2015 (Canada):** **See Section 2.**

**Australia inventory (AICS)**: Not determined.
**China inventory (IECSC)**: Not determined.
**Japan inventory**: Not determined.
**Korea inventory**: Not determined.
**Malaysia Inventory (EHS Register)**: Not determined.

**New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
**Philippines inventory (PICCS)**: Not determined.
**Taiwan inventory (CSNN)**: Not determined.

**Chemical Weapons Convention List Schedule I Chemicals:** Not listed
**Chemical Weapons Convention List Schedule II Chemicals:** Not listed
**Chemical Weapons Convention List Schedule III Chemicals:** Not listed

**DSCL (Europe):** R48/20: Harmful – Danger of serious damage to health by prolonged exposure through inhalation.
R36: Irritating to the eyes
R39: Danger of serious irreversible side effects.
R45: May cause cancer.

## Section 16. Other Information

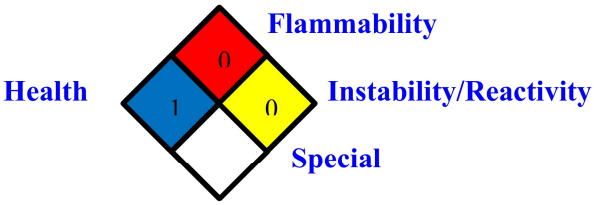
**Hazardous Material Information System (U.S.A.)**

| | |
|---|---|
| **Health** | 2 |
| **Flammability** | 0 |
| **Physical Hazards** | 0 |
| | |

**Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.**

**The customer is responsible for determining the PPE code for this material.**

**National Fire Protection Association (U.S.A.)**




**Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.**

**Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.**

DISCLAIMER – BNZ Materials, Inc., (BNZ) believes the information contained in this Safety Data Sheet (SDS) 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 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 any liability for any loss, injury, or damage resulting from the use of this product.

## History

| | |
|---|---|
| **Date of issue/Date of revision:** | August 1, 2022 |
| **Date of previous issue:** | November 7, 2018 |
| **Changes** : | Routine review and update; no significant changes |
| **Prepared by:** | T Square Associates, Inc.<br>**www.tsquare.us** |