



## SAFETY DATA SHEET

## SECTION 1. IDENTIFICATION

GHS Product Identifier: Milled Baddeleyite

Chemical Name: (mixture) Baddeleyite

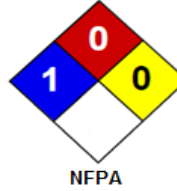
Recommended Applications: Used singularly or as a component in refractories, investment casting and high temperature coatings.

Manufacturer Information: TAM Ceramics, LLC (#220821)  
4511 Hyde Park Blvd Niagara Falls, NY 14305  
Phone Number: 716-278-9400

Website: [www.tamceramics.com](http://www.tamceramics.com)

**CHEMICAL EMERGENCY**  
Spill, Leak, Fire, Exposure  
or Accident

**CHEMTREC 24 HOUR EMERGENCY TELEPHONE**  
**DOMESTIC NORTH AMERICA 800-424-9300**  
**INTERNATIONAL CALL: 703-527-3887**  
Collect Calls Accepted



Health	1
Fire	0
Reactivity	0
Personal Protection	X

HMIS

## SECTION 2. HAZARD(S) IDENTIFICATION

GHS Pictogram:



Signal word:

WARNING

GHS classification:

Eye irritation, Category 2  
Skin irritation, Category 2

Hazard Statement:

Inert particles can be slightly, mechanically irritating to the eyes.  
Prolonged skin contact may cause skin irritation or dermatitis.  
Overexposure by inhalation may cause respiratory irritation.

Precautionary Statement:

Wash hands thoroughly after handling. Minimize exposure by wearing protective gloves, clothing, eye protection and respiratory masks. Have a clean change of works clothes readily available. Avoid dust formation and utilize good housekeeping practices.

Route of Exposure:

Eyes, skin, inhalation and ingestion.

Potential Health Effects:

**Eye:** May cause a slight irritation. Resin particles, like other inert materials, are mechanically irritating to eyes.  
**Skin:** Prolonged skin contact may cause skin irritation and/or dermatitis.  
**Inhalation:** Product dust may be irritating to eyes, skin and respiratory system. Over-exposure by inhalation may cause respiratory irritation.  
**Ingestion:** May irritate digestive tract if swallowed.

Chronic toxicity:

Excessive inhalation of dust may cause chemical pneumonitis, cyanosis, and pulmonary edema. This product contains amorphous silica. Overexposure by inhalation of respirable dust may cause respiratory problems including pneumoconiosis. This product contains trace quantities (130 to 145 pCi/g) of naturally occurring Uranium and Thorium. Overexposure by inhalation of respirable dust containing these radioactive elements may cause lung cancer. This product contains zirconium dioxide and it has been reported to cause lung granulomas.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No	EC Number	Weight %	OSHA	ACGIH
Zirconium dioxide	1314-23-4	215-227-2	95 - 99%	5 mg/m <sup>3</sup> TWA as Zr	10 mg/m <sup>3</sup> STEL as Zr 5 mg/m <sup>3</sup> TWA as Zr
Calcium Oxide	1305-78-8	215-138-9	0.1 - 0.5%	5 mg/m <sup>3</sup> TWA	2 mg/m <sup>3</sup> TWA
Rutile	131 7-80-2	215-282-2	0.1 - 0.5%	Not established	Not established
Aluminum oxide	1344-28-1	215-696-6	0.1 - 0.5%	15 mg/m <sup>3</sup> TWA 5 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> TWA
Ferrous oxide	1345-25-1	215-721-8	0.1 - 0.5%	Not established	1 mg/m <sup>3</sup> TWA (as Fe)
Quartz silica	14808-60-7	238-878-4	0.1 - 0.5%	30 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2)	0.05 mg/m <sup>3</sup> TWA
				Total Dust	
				10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> + 2)	
				Respirable	

## SECTION 4. FIRST AID MEASURES

**Eye contact:** Rinse eyes immediately with plenty of water on eye surfaces and under eyelids. Get medical attention if irritation develops.

**Skin contact:** Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms persist, call a physician.

**Ingestion:** Drink plenty of water. Consult a physician if necessary. Do not induce vomiting without medical advice.

**Notes to physician:** Treat symptomatically.

## SECTION 5. FIRE-FIGHTING MEASURES

**Flash point:** No data available

**Suitable extinguishing media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Hazardous decomposition products:** Thermal decomposition can lead to release of irritating gases and vapors.

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

**Unusual hazards:** Dust may form explosive mixture in air.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Fine dust dispersed in air may ignite.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up:** Use approved industrial vacuum cleaner for removal. Wear personal protective equipment. Dispose of promptly.

## SECTION 7. HANDLING AND STORAGE

**Handling:** Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Provide appropriate exhaust ventilation at places where dust is formed. Remove all sources of ignition. Wash hands thoroughly before eating, drinking or smoking.

**Storage:** Keep container tightly closed in a dry and well-ventilated place.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering measures:** Ensure adequate ventilation, especially in confined areas. Airborne dust levels should be controlled by physical enclosure during abrasive blasting operation. Refer to 29 CFR 1910.94 Ventilation (a) Abrasive Blasting. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Respiratory protection:** Use NIOSH approved respirator when ventilation is inadequate. Wear NIOSH approved respirator to limit exposure to NORM. Use a HEPA-filtered approved for radionuclides where airborne concentrations are expected to exceed exposure limits. Use a supplied-air respirator if there is any potential for an uncontrolled release, exposure levels are not known, or where air purifying respirators may not provide adequate protection. OSHA requires a continuous flow air-line supplied respirator with hood for protection in abrasive blasting operations. Refer to OSHA Standards 29 CFR 1910.94.

**Hand protection:** Impervious gloves.

**Skin and body protection:** Lightweight protective clothing. Chemical-resistant gloves and impermeable body covering to minimize skin contact. Contaminated work clothing should not be allowed out of the workplace. Keep working clothes separately. Remove and wash contaminated clothing before re-use.

**Eye protection:** Safety glasses with side-shields

**Exposure limits:** See Section 2.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Color:** White to light yellow

**Odor:** Odorless

**Boiling point/range (°C):** No data available

**Melting point/range (°C):** 2715

**Vapor pressure (mmHg):** No data available

**Water solubility (mg/l):** Insoluble

**Physical state:** Powder or Grain

**Molecular weight:** No data available

**pH:** No data available

**Specific gravity (Water =1):** 5.600 -5.900

**Evaporation rate (Water =1):** No data available

**VOC content (%):** No data available

**Odor threshold:** No Data Available

**Vapor pressure:** No Data Available

**Flash point:** No Data Available

**Flammability (solid, gas):** No Data Available

**Upper/lower flammability or explosive limits:** No Data Available

**Vapor density:** No Data Available

**Relative density:** No Data Available

**Partition coefficient: n-octanol/water:** No Data Available

**Auto-ignition temperature:** No Data Available

**Decomposition temperature:** No Data Available

**Viscosity:** No Data Available

## SECTION 10. STABILITY AND REACTIVITY

**Stability:** Stable at normal conditions.

**Polymerization:** Will not occur.

**Hazardous decomposition products:** None under normal use.

**Materials to avoid:** None known.

**Conditions to avoid:** Avoid dust formation.

## SECTION 11. TOXICOLOGICAL INFORMATION

### **Acute Toxicity**

**Chronic toxicity:** Contains crystalline silica which causes silicosis and lung cancer.

**Carcinogenic effects:** Not listed by IARC, NTP or OSHA as a carcinogen.

**Target Organ Effects:** Silica: Respiratory system. Zirconium: Skin, respiratory system.

### **Zirconium Dioxide**

ACGIH - Carcinogens: A4 - Not Classifiable as a Human Carcinogen

A4 - Not Classifiable as a Human Carcinogen (as Zr)

### **Aluminum Oxide**

ACGIH - Carcinogens: A4 - Not Classifiable as a Human Carcinogen

### **Ferrous Oxide**

NIOSH - LD50s and LC50s: = 30 g/kg Oral LD50 Rat

### **Quartz Silica**

ACGIH - Carcinogens: A2 - Suspected Human Carcinogen

OSHA - Select Carcinogens: Present

NTP: Known Carcinogen

IARC - Group 1: Monograph 68, 1997

Monograph 68, 1997 (inhaled in the form of quartz or cristobalite from occupational sources)

## SECTION 12. ECOLOGICAL INFORMATION

**Aquatic toxicity:** No information available

**Persistence and degradability:** No information available

## SECTION 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:** Waste must be disposed of in accordance with federal, state and local environmental control regulations. Where possible recycling is preferred to disposal or incineration. This product contains Naturally Occurring Radioactive Materials (NORM). Consult and comply with current regulations.

## SECTION 14. TRANSPORT INFORMATION

**DOT:**

Proper shipping name: Not regulated.

**TDG (Canada):**

Proper shipping name: Not regulated.

## SECTION 15. REGULATORY INFORMATION

**U.S. Regulations:**

**Not subject to the provisions of SARA 313 Title III**

Not subject to TSCA 12(b) Export Notification

**State Regulations**

This product or its ingredients have been evaluated for New Jersey, Pennsylvania, and California Prop 65 supplier notification requirements. Substances that are subject to notification requirements, if any, are listed below.

**Zirconium Dioxide**

**NJRTK:** sn 2047

**PARTK:** Listed

**Cal Prop65:** Radionuclides

**Quartz Silica**

**NJRTK:** sn 1660

**PARTK:** Listed

**Cal Prop65:** carcinogen, initial date 10/1/88 (airborne particles of respirable size)

**Canadian WHMIS**

WHMIS hazard class: D2A Very toxic materials. D2B Toxic materials.

**Components** **WHMIS Ingredient Disclosure:**

Zirconium dioxide (95 - 99%) 1%

Quartz silica (0.1 - 0.5%) 1%

**International Inventories**

TSCA 8(b): All the ingredients are on the TSCA list.

Canadian DSL: All the ingredients are on the DSL

EINECS: All the ingredients are on the EINECS list.

Phillipines (PICCS): Listed.

Japan (ENCS): Listed.

Korea (KECL): Listed.

China (IECS): Listed.

Australia (AICS): Listed.

## SECTION 16. OTHER INFORMATION

**For Industrial Use Only**

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

**Health:** 1

**Fire:** 0

**Physical Hazard:** 0

**PPE:** X

**Prepared by:** Product Manufacturer, TAM Ceramics Group of NY, LLC

**Protective Equipment:** Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

The information and recommendations contained in this Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the SDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

Last Updated: May 2015

**End of Safety Data Sheet**