

MATERIAL SAFETY DATA SHEET



TAM Ceramics, LLC (#220821)
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Phone Number: 716-278-9400

For Chemical Emergency
Spill, Leak, Fire, Exposure or Accident
Call CHEMTREC Day or Night
DOMESTIC NORTH AMERICA 800-424-9300
INTERNATIONAL CALL: 703-527-3887 (collect calls accepted)

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product Name: Zirconium Silicate
Other Names: TZM, Sand A, EZM, Zircon Flour, GZM, E Zircon Milled/TMC, Zircon Flour NEC
Synonyms: Zircon

2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

			NFPA 704
Color:	Off white	Health:	1
Physical state:	Powder	Fire:	0
Odor:	Odorless	Instability:	0

Avoid dust formation. May cause physical irritation. Contains crystalline silica which causes silicosis and lung cancer. This material contains very low levels of Naturally Occurring Radioactive Material (NORM).

Potential Health Effects

Principle routes of exposure: Inhalation, ingestion, skin and eye contact.

Eye contact: May cause slight irritation. Resin particles, like other inert materials, are mechanically irritating to eyes.

Skin contact: 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. Respirable dust may be harmful to the respiratory system.

Ingestion: May irritate digestive tract.

Chronic toxicity: Excessive inhalation of dust may cause chemical pneumonitis, cyanosis, and pulmonary edema. Long term inhalation causes lung damage (silicosis and cancer). Respirable crystalline silica has been classified as a Group I (sufficient evidence in humans for carcinogenicity) carcinogenic by IARC and is listed by NTP as a substance which may reasonably be anticipated to be a carcinogen. This product contains trace quantities (90 - 110 pCi/g) of naturally occurring radioactive uranium and thorium and (109 - 114 pCi/g) radium. Overexposure by inhalation to respirable dusts containing radioactive uranium, thorium, and radium may cause lung cancer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

	CAS-No	Weight %	OSHA	ACGIH
Zirconium Silicate	14940-68-2	95 - 99%	5 mg/m ³ TWA as Zr	10 mg/m ³ STEL as Zr 5 mg/m ³ TWA as Zr
Kyanite	1302-76-7	1 - 5%	Not established	Not established
Quartz silica	14808-60-7	0.1 - 0.5%	30 mg/m ³ / (%SiO ₂ + 2) Total Dust 10 mg/m ³ / (%SiO ₂ + 2) Respirable	0.05 mg/m ³ TWA

OSHA particulate (not otherwise regulated) limit: 5 mg/m³ (respirable); 15 mg/m³ (total).

This product contains trace quantities of naturally occurring radioactive uranium, thorium and radium (<0.042% total). Overexposure by inhalation to respirable dusts containing uranium, thorium and radium may cause cancer, however, observance of the OSHA limit for respirable dusts of 5 mg/m³ will ensure the use of this product to be well below the regulatory limits established for these components.

4. FIRST AID MEASURES

Eye contact: Rinse immediately with plenty of water, also under the 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.

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: Avoid dust formation.

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.

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.

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.

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 3.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Off white	Physical state:	Powder
Odor:	Odorless	Molecular weight:	No data available
Boiling point/range (°C):	No data available	pH:	No data available
Melting point/range (°C):	2100 - 2300	Specific gravity (Water =1):	4.700
Vapor pressure (mmHg):	No data available	Evaporation rate (Water =1):	No data available
Water solubility (mg/l):	Insoluble	VOC content (%)	No data available

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.

11. TOXICOLOGICAL INFORMATION

Chronic toxicity:

Contains crystalline silica which causes silicosis and lung cancer.

Carcinogenic effects:

Respirable crystalline silica has been classified as a Group I (sufficient evidence in humans for carcinogenicity) carcinogenic by IARC and is listed by NTP as a substance which may reasonably be anticipated to be a carcinogen. Crystalline silica is also a known cause of silicosis, a non-cancerous lung disease caused by excessive exposure to crystalline silica. Listed by IARC, NTP and OSHA as a carcinogen.

Target Organ Effects:

Silica: Respiratory system. Zirconium: Skin, respiratory system.

Zirconium Silicate

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

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

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)

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No information available.

Persistence and degradability: No information available.

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.

14. TRANSPORT INFORMATION

DOT (U.S.)

Proper shipping name: Not regulated.

TDG (Canada)

Proper shipping name: Not regulated.

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 Silicate (95 - 99%)

NJRTK: sn 2047

PARTK: Listed

Cal Prop65: Radionuclides

Kyanite (1 - 5%)

NJRTK: sn 0054 (dust and fume)

PARTK: Listed

Quartz silica (0.1 - 0.5%)

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.

<u>Components</u>	<u>WHMIS Ingredient Disclosure:</u>
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Zirconium Silicate (95 - 99%)	1%
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Quartz silica (0.1 - 0.5%)	1%
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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.

Philippines (PICCS): Not listed.

Japan (ENCS): Not listed.

Korea (KECL): Listed.

China (IECS): Listed.

Australia (AICS): Listed.

For Industrial Use Only

HMIS

Health: *1

Fire: 0

Physical hazard: 0

PPE: X

Prepared by: Product Manufacturer,TAM Ceramics, LLC

The information and recommendations contained in this Material 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 MSDS 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.

End of Safety Data Sheet