



Refractory Sales & Service

Material Safety Data Sheet

Identity (as used on label and list): Dixie X-4 Ram

Date: 7/8/14

Signature of preparer(optional):

Section 1 - Identification

Manufacturer: Refractory Sales & Service Co., Inc., 1750 HWY 150, Bessemer, AL, 35022

Emergency Telephone: 205-424-3980

Telephone for Information: 205-424-3980

Section 2 - Hazardous Ingredients

Hazardous Component	C A S No.	OSHA PEL	ACGIH TLV	%
Quartz	14808-60-7	$\frac{1}{2}$ [10 mg/m ³ / (% SiO ₂ + 2)] (Resp.) $\frac{1}{2}$ [30 mg/m ³ / (% SiO ₂ + 2)] (total)	0.025 mg/m ³	1-4
Silicic Acid, Sodium Salt	1344-09-8	not established	not established	5-10

Section 3 - Physical/Chemical Characteristics

Boiling Point: N/A

pH (50/50 water): 12

% Volatile by volume: 0

Solubility in water: Negligible

Appearance and Odor: Brown, gray or tan granular powder. Slight odor.

Specific Gravity (H₂O=1): Mixture

Melting Point: >2000°F

Evaporation Rate: N/A

Section 4 - Fire and Explosion Hazard Data

Flash Point: N/A

Flammable Limits— LEL: N/A

Extinguishing Media: No special instructions or conditions.

Special Fire Fighting Procedures: Firefighters should wear approved protective clothing and breathing

Method Used: N/A

UEL: N/A

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apparatus where appropriate.

Unusual Fire And Explosion Hazard: None

Section 5 - Reactivity Data

Stability— Stable: X

Unstable:

Incompatibility: Acid causes material to gel. Prolonged contact with aluminum, tin, lead and zinc while wet, may produce hydrogen gas.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur.

Section 6 - Health Hazard Data

HMIS

Health	1-Slight
Flammability	0-Minimal
Reactivity	1-Slight
Personal Protection	E-Eye protection, Gloves

Target Organs: Lungs

Primary route of entry: Inhalation

Acute Effects:

Eye Contact: Moderately high pH may cause burning, redness and pain. A physical eye irritant by contact.

Skin Contact: Contact with bare skin may cause the development of irritation.

Inhalation: Inhalation of excessive airborne particulate may irritate upper respiratory system.

Ingestion: In the unlikely event the product may be ingested in sufficient quantity, symptoms will include irritation and may include nausea, vomiting and abdominal pain.

Chronic Effects:

Dust which may be generated from dried product during installation and after-service tear-out may contain free/crystalline silica. The prolonged inhalation of mineral dusts containing free/crystalline silica may result in the development of a disabling pulmonary fibrosis known as silicosis; a progressive, incapacitating and sometimes fatal lung disease. IARC has classified crystalline silica as a "Known Human Carcinogen-Group 1". NTP lists respirable crystalline silica amongst substances which is "known to be a human carcinogen". See Section 9 for information on removal/tear-out.

Carcinogenicity— NTP: Yes

IARC: Yes

OSHA: Yes

Medical Conditions Generally Aggravated by Exposure: Emphysema, bronchitis, lung cancer. Smoking aggravates all of these conditions and has an additive effect with silica dust.

Section 7 - Precautions for Safe Handling and Use

Emergency and First Aid Procedures: Follow instructions below for emergencies only.

ALWAYS seek medical attention immediately.

Inhalation: Remove to fresh air. Apply artificial respiration if breathing has stopped.

Skin Contact: Remove and discard contaminated clothing. Wash affected areas thoroughly with soap and water.

Eye Contact: Flush eyes (held open) with water for 15 minutes, or 30 minutes if physician not immediately available. If irritation persists, seek medical attention.

Ingestion: Leave decision to induce vomiting to qualified medical personnel, since material may be aspirated into lungs. If conscious, immediately give large quantities of water. If vomiting occurs, give water again.

Section 8 - Precautions for Safe Handling and Use

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Steps to be Taken in Case Material is Released or Spilled: Clean up and place in suitable container, being careful to avoid creating excessive dust.

Waste Disposal Method: Contact licensed waste disposal professionals.

Precautions to be Taken in Handling and Storage: Use systems for handling, storage, and clean up so that exposure does not exceed TLV's or PEL's given.

Other Precautions: Practice good housekeeping, observe environmental protection regulations.

Section 9 - Control Measures

Respiratory Protection (specify type): Use NIOSH/MSHA approved respirators for silica (for dried material), for acid (for wet material), if long-term exposure and poor ventilation exist. For dust concentrations above allowable limits, provide workers with NIOSH/MSHA approved respirators in accordance with requirements of OSHA (29 CFR 1910.134) and MSHA (30 CFR Parts 56 & 57).

Ventilation: Provide sufficient ventilation, in both volume and air flow patterns, to control dust concentrations below allowable exposure limits.

Gloves: Rubber or Neoprene/Latex

Eye Protection: Tight fitting goggles or face shield.

Other Protective Clothing or Equipment: Use impervious clothing- see OSHA 1910.1000

Work/Hygienic Practices: Avoid eye, skin, or clothing contact. Wash thoroughly after handling. Avoid prolonged inhalation of dusts from dried, or vapors from wet, material.

Removal/Tear-out after use: Because of the possible presence of crystalline silica in used refractory debris, particular care should be exercised during tear-out to minimize the generation of dust. Adherence to proper methods of dust suppression and control is imperative. The following precautions should be taken during tear-out:

1. Employee should be apprised of the hazards and proper conditions and precautions for safe use or exposure.
2. Approved respirators, in accordance with requirements of OSHA (29 CFR 1910.134) and MSHA (30 CFR Parts 56 & 57) should be used for dust levels above the allowable limits for respirable crystalline silica.
3. Dust generation should be minimized by the use of dust control equipment or water spray.
4. Wear protective clothing and vacuum clean before removing clothing.
5. Where there is a possibility of exposure to dust containing respirable crystalline silica, the following warning should be posted:

**FREE SILICA WORK AREA-----AVOID BREATHING DUST
DUST MAY CAUSE DELAYED LUNG INJURY (SILICOSIS)**

Section 10 - Regulatory Information

Product or components of mixture regulated under following lists:

SARA Title III

Section 302:	No	(Extremely Hazardous Substances)
Section 304:	No	(Emergency Release - CERCLA)
Section 311:	Yes	(Chronic Effects - MSDS)
Section 312:	Yes	(Tier I & II)
Section 313:	No	(Toxic Chemicals)

TSCA: All substances in this product are listed in the Chemical Substance Inventory of the Toxic Substances Control Act.

Section 11 - Acronyms and References

Acronyms:

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS#:	Chemical Abstracts Services material identification number
CERCLA:	Comprehensive Environmental Response, Compensation & Liability Act

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EMPCRA:	Emergency Planning & Community Right-to-Know Act of 1986
HMIS:	Hazardous Materials Identification System (National Paint & Coatings Association)
IARC:	International Agency for Research on Cancer
MSHA:	Mine Safety & Health Administration
NIOSH:	National Institute for Occupational Safety & Health
NFPA:	National Fire Protection Agency
NTP:	National Toxicology Program
OSHA:	Occupational Safety & Health Administration
PEL:	Permissible Exposure Limit (OSHA)
REL:	Recommended Exposure Limit (NIOSH)
SARA:	Superfund Amendment & Reauthorization Act
TITLE III:	Emergency Planning & Community Right To Know Act
Section 302:	Extremely Hazardous Substances
Section 304:	Emergency Release
Section 311:	Community Right To Know— List of Chemicals
Section 312:	Community Right To Know— Inventories & Locations (Tier I&II)
Section 313:	Toxic Chemicals (Form R)
TLV:	Threshold Limit Value (ACGIH)
TWA:	Time Weighted Average
29CFR 1910.134:	OSHA Respiratory Protection Standard

References:

Sax, N. Irving: Dangerous Properties of Industrial Materials, Eighth Edition, Van Nostrand Reinhold Co., Inc., 1992

Sax, N. Irving and Lewis, R.J., Hawley's Condensed Chemical Dictionary, Eleventh Edition, Van Nostrand Reinhold Co., Inc.

Manufacturers & Suppliers, Material Safety Data Sheets for materials used.

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