

Section 1. Product and Company Identification

Product Name: Dixie X-4 Ram

Issue Date: June 2, 2015

Product Use: Refractory Lining Material

Manufactured By:

Refractory Sales & Service Co., Inc.
1750 Highway 150
Bessemer, AL 35022-4044

Phone: (205)-424-3980

Fax: (205)-426-4303

www.rssdixie.com

Emergency Contact: CHEMTREC: 1-800-424-9300 (USA/Canada)

Section 2. Hazard Identification

Signal Word: DANGER

Hazard Classification:

H315 – Causes Skin Irritation – (Category 2)

H319 – Causes Serious eye irritation – (Category 2A)

H335 – May Cause Respiratory Irritation – (Category 3)

H350 – Carcinogenic – (Category 1A)

H372 – Specific Target Organ Toxicity – (Category 1)

Pictogram:



Hazard Statements:

H315 – Causes skin irritation

H319 – Causes serious eye damage

H335 – May cause respiratory irritation

H350 – May cause cancer (inhalation)

H372 – Causes damage to organs through prolonged or repeated exposure (inhalation)

Precautionary Statements:

P201 – Obtain special instructions before use

P202 – Do not handle until all safety precautions have been read and understood

Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

P260 – Do not breathe dust
P264 – Wash hands and other exposed areas thoroughly after handling
P270 – Do not eat, drink or smoke when using this product
P280 – Wear protective gloves, protective clothing, eye protection, respiratory protection
P314 – Get medical advice/attention if you feel unwell
P304+340 – IF INHALED: remove person to fresh air and keep comfortable for breathing
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P302+352 – IF ON SKIN: Wash with plenty of water
P308+313 – IF exposed or concerned, get medical advice/attention
P362+364 – Take off contaminated clothing and wash it before reuse
P501 – Dispose of contents/container in accordance with local, regional, national, and international regulation

Primary Route of Entry: Inhalation, Ingestion, Skin Contact

Target Organs: Respiratory tract (nose & throat), Eyes, Skin

Potential Health Effects:

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

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

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.

Inhalation: Effects of overexposure:

Acute: Exposure to nuisance dust may cause temporary irritation or discomfort to skin, eyes, nose, throat or lungs and may aggravate bronchial disorders.

Chronic: 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".

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 3. Composition / Information on Hazardous Ingredients

Chemical Name	Wt.%	CAS	OSHA PEL		ACGIH TLV	
			Total	Respirable	Total	Respirable
Zirconium Silicate	50 - 95	14940-68-2	15 mg/m ³	5 mg/m ³	10 mg/m ³	5 mg/m ³
Sodium Silicate	3 - 30	1344-09-8	15 mg/m ³	5 mg/m ³	15 mg/m ³	---
Silica, Crystalline (Cristobalite)	<1	14464-46-1	½[30 mg/m ³ / (%SiO ₂ + 2)]	½[10 mg/m ³ / (%SiO ₂ + 2)]	---	0.025 mg/m ³
Silica, Crystalline (quartz)	2 - 20	14808-60-7	30 mg/m ³ / %SiO ₂ + 2	10 mg/m ³ / %SiO ₂ + 2	---	0.025 mg/m ³

Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

Section 4. First Aid Measures

Emergency and First Aid Procedures: Follow instructions below for emergencies only. Always seek medical attention immediately. Sodium silicate component is a corrosive alkaline material. Some risk by inhalation. Prolonged skin contact may produce irritation/inflammation.

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

Eye Contact: Flush eyes (held open) with water for 15 minutes, or 30 minutes if physician not immediately available. Remove contact lenses if present and easy to do, continue rinsing. If irritation persists get medical attention.

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

Ingestion: If the material is swallowed, get immediate medical attention or advice. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting.

Section 5. Fire Fighting Measures

General Fire Hazards: This product is noncombustible and will not ignite or contribute to the intensity of a fire.

Extinguishing Media: As appropriate for surrounding fire.

Specific Hazards Arising from the Product: Product is not flammable or combustible.

Fire Fighting Equipment/Instructions: As in any fire, wear self-contained breathing apparatus pressure-demand,(MSHA/NIOSH approved or equivalent) and full protective gear.

Section 6. Accidental Release Measures

Personal Precautions: Use personal protective equipment recommended in Section 8. Practice good housekeeping, observe environmental protection regulations.

Environmental Precautions: Do not dump or flush material into drains, sewers or streams. Dispose of product, residue, disposable containers or liners in compliance with regulatory requirements.

Methods for Containment: Clean up and place in suitable container, being careful to avoid creating excessive dust.

Methods for Clean-up: Use systems for handling, storage, and clean up so that exposure does not exceed TLV's or PEL's given.

Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

Section 7. Handling and Storage

Handling: Minimize dust generation and avoid inhalation and contact with refractory dusts during processing, installation, maintenance and tear-out. After handling of refractory dusts from processing, installation, maintenance or tear-out, wash exposed skin areas thoroughly. Wash clothing contaminated with dusts.

Storage: To ensure product quality, store material in a dry place between 40°F and 80°F. Avoid exposure to moisture prior to use.

Section 8. Exposure Controls/Personal Protection

Exposure Limits: See [Section 3](#) for occupational exposure limit values.

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).

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

Skin Protection: Wear rubber or neoprene/latex gloves and protective clothing to minimize skin contact.

Eye Protection: Tight fitting goggles or ANSI approved safety glasses with side shields.

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 recommended 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)



Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

Section 9. Physical and Chemical Properties

Appearance / Color: Damp mixture of fine materials. Grey or tan in color.

Odor: Slight

Odor Threshold: N/A

Vapor Pressure: N/A

pH (50/50 water): 12

Relative Density: 195 - 210 pcf

Melting Point: >2000°F

Freezing Point: N/A

Water Solubility: N/A

Boiling Point and Range: N/A

Flash Point: N/A

Evaporation Rate: N/A

Flammability: N/A

Upper/Lower Flammability/Explosive Limits: N/A

Partition Coefficient: n-octanol/water: N/A

Auto-Ignition Temperature: N/A

Decomposition Temperature: N/A

Viscosity: N/A

Section 10. Stability and Reactivity

Stability: Stable

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

Incompatibility: N/A

Hazardous Polymerization: N/A

Hazardous Decomposition: N/A

Section 11. Toxicology Information

Numerical measures of Toxicity:

Crystalline Silica (quartz): LD50 Oral Rat >5000 mg/kg

Sodium Silicate: LD50 Oral Rat 1153 mg/kg

Zircon: LD 50 Oral Rat 5000 mg/kg

Acute effects: Exposure to nuisance dust may cause temporary irritation or discomfort to skin, eyes, nose, throat or lungs and may aggravate bronchial disorders. Acid causes material to gel. Prolonged contact with aluminum, tin, lead and zinc while wet, may produce hydrogen gas.

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.

Carcinogenicity:

Crystalline silica, quartz (CAS 14808-60-7): IARC Group 1

Crystalline silica, cristobalite (CAS 14464-46-1): IARC Group 1

Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

Section 12. Ecological Information

No ecological concerns have been identified.

Not applicable for as-manufactured refractory product. Dusts of as-manufactured refractory product have a low order of aquatic toxicity (rating TLM96: over 1000 ppm), are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g. metal). Evaluation of dusts from specific processes should be performed by a qualified environmental professional to determine if an environmental threat exists in the case of a release.

Section 13. Disposal Considerations

Waste Disposal Method: According to the EPA (40CFR261.3) wastes are not hazardous wastes. Wastes may be disposed of in a landfill, however, in accordance with federal, state, and local regulations. However, dusts generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g. metals). Therefore, appropriate waste analysis may be necessary to determine proper disposal. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state and local regulations.

Section 14. Transportation Information

Canadian Transportation of Dangerous Goods Regulation: Not Regulated

DOT Proper Shipping Name (29 CFR 172.101): Not regulated

DOT Hazard Class (29 CFR 172.101): Not regulated

UN/NA Code (49 CFR 172.101): Not applicable

DOT Labels Required (49 CFR 172.101): Not applicable

DOT Placards Required (49 CFR 172.504): Not applicable

Land Transport ADR/RID (cross-border): Not regulated

Maritime Transport IMDG: Not regulated

Air Transport ICAO-TI and IATA-DGR: Not regulated

Section 15. 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.

Safety Data Sheet

Refractory Sales and Service
Dixie X-4 Ram

Date: 5/26/15

Section 16. Other Information

Hazard Ratings:

HMIS

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

Revision Summary:

5/26/15 – Revised and re-written in accordance with GHS / HCS guidelines

Acronyms:

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

Disclaimer:

The information set forth herein is based on technical data that Refractory Sales & Service Co., Inc. believes to be reliable. Since conditions of use are outside the control of Refractory Sales & Service Co., Inc., no warranties, expressed or implied, are made and no liability is assumed in connection with any use of this information.