

PRINCEMINERALS[®]

MATERIAL SAFETY DATA SHEET

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Section I: Product Information

Identity: MANGANESE DIOXIDE

Trade Names: BRICKOX, GRANU-SPECK, SLURRY
GRADE BRICKOX, GLASSOX

Revision Date: 06/2013

HMIS

Health- 2
Flammability- 0
Reactivity- 0
Personal Protection:



Section II: Composition

Chemical Name:	CAS #	Percent
Manganese Compound	1313-13-9	100

Section III: Health Hazard Data

Component	CAS	% By Wt	OSHA PEL (mg/m ³)	OSHA Ceiling	ACGIH TLV	ACGIH STEL	Listed Carcinogen		
							NTP	IARC	OSHA
Manganese	7439-96-5	45-55%	5	5	0.2 mg/m ³	N/A	N	N	N
Iron Oxide	1309-37-1	1-5 %	10	N/A	5 mg/m ³	N/A	N	N	N
Silica, Crystalline Quartz	14808-60-7	1-5 %	(10mg/m3) / (%SiO2 +2)	N/A	0.05 mg/m3	N/A	Y	Y	N
Aluminum Oxide (as impurity)	1344-28-1	1-7 %	15 (total) / 5	N/A	10 mg/m ³	N/A	N	N	N
Barium Oxide (as impurity)	1304-28-5	0.2-2%	0.5	N/A	0.5 mg/m ³	N/A	N	N	N

*IARC Group: Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)

Emergency Overview: Not a fire or spill hazard. Dry dust is a nuisance particulate. Generally, health effects are provided for exposure to dust that may be generated during product transfer and handling.

Primary Route of Exposure:	Inhalation
Relevant Routes of Exposure:	<p>EYE CONTACT: Particulate may cause slight to moderate irritation. Dust particulate can damage eye.</p> <p>SKIN CONTACT: Prolonged or repeated contact may cause slight to moderate irritation.</p> <p>INHALATION: Overexposure by inhalation of airborne particulate, dust, or fumes is irritating to the nose, throat, and respiratory tract. Inhalation of excessive levels of dust or fumes may be harmful.</p> <p>INGESTION: Unlikely route of exposure; no hazard in normal industrial use. Small amounts (< tablespoonful) swallowed during normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. If ingested in sufficient quantity, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain, and diarrhea.</p>
Acute and Chronic Effects of Exposure:	<p>Excessive, short-term exposure to airborne mineral dusts and particulate may cause upper respiratory and eye irritation.</p> <p>Excessive, long-term inhalation of airborne mineral dusts and particulate may contribute to the development of bronchitis, reduced breathing capacity, and may lead to the increased susceptibility to lung disease.</p> <p>Long term exposure to high concentrations of dust and fume containing iron compounds is known to produce a condition known as siderosis. On X-rays, it appears to be a benign pneumoconiosis and is not associated with pulmonary fibrosis or disability unless there is concurrent exposure to other fibrosis producing materials such as silica. Chronic ingestion of excess levels of iron can result in pathological deposition of iron in the body tissues, the symptoms of which are fibrosis of the pancreas, diabetes, mellitus, and liver cirrhosis.</p> <p>Chronic exposure and inhalation of excessive manganese dust may cause disorders of the central nervous system. Chronic exposure of manganese may cause symptoms similar to Parkinson's disease.</p>
Signs and Symptoms of Exposure:	(Dust) tearing of eyes, burning sensation in the throat, cough, and chest discomfort. Early symptoms of manganese toxicity include impaired pulmonary function and wheezing. Inhalation of manganese dioxide fume can cause "fume metal fever", a flu-like illness characterized by chills, fever, aching muscles, dryness of mouth and throat.
Aggravation of Pre-existing Conditions:	The excessive inhalation of mineral dust may aggravate pre-existing chronic lung conditions such as, but not limited to, bronchitis, emphysema, and asthma.
Reproductive Hazards:	None known.

Section IV: First Aid

Emergency and First Aid Procedures:	<p>EYE CONTACT: Flush eyes immediately with water for at least 15 minutes. Seek medical attention if irritation persists.</p> <p>SKIN CONTACT: Immediately wash affected area with mild soap and water to remove any dust adhering to the skin. Seek medical attention if irritation develops or persists.</p> <p>INHALATION: If exposed to excessive levels of dust or fumes, remove to fresh air and seek medical attention if cough or other symptoms develop. If not breathing, give artificial respiration or give oxygen by trained personnel, and get medical attention.</p> <p>IF INGESTED: Unlikely route of exposure. If ingested in sufficient quantity and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting to qualified medical personnel, since particles may be aspirated into the lungs. Seek immediate medical attention.</p>
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Section V: Fire and Explosion Hazard Data

Emergency Overview:	Not combustible. Dry dust is a nuisance particulate. Generally, health effects are provided for exposure to dust that may be generated during product transfer and handling.
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Flammable Properties:	This material may ignite combustible materials in the presence of high temperatures.
Extinguishing Media:	Use extinguishing media appropriate to combustibles in the surrounding area.
Protection for Firefighters:	Wet material should be kept out of eyes and off skin. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section VI: Accidental Release

Containment:	Product is a dry solid (granular or powder) and not readily soluble in water. However, prevent spilled product from entering streams, water bodies, and wastewater systems.
Cleanup:	Vacuum or sweep up dry material and place in a container for reuse. Avoid creating excessive airborne dust. It is recommended that cleanup personnel wear approved respiratory protection, gloves, long sleeved clothing and goggles to prevent irritation from contact and inhalation.
Collection:	If possible, collect and reuse spilled product.
Evacuation:	Isolate hazard area. Keep unnecessary and unprotected personnel from entering area.
Potential Environmental Effects:	Derived from natural ores; no adverse environmental effects found or known. However, prevent spilled product from entering streams, water bodies, and wastewater systems

Section VII: Precautions for Safe Handling and Use

Handling:	Minimize dust generation and accumulation. Avoid breathing dust. Avoid contact with skin and eyes.
Storage:	Store in cool, dry area. Keep container closed when not in use.
Waste Disposal:	If possible, collect and reuse spilled product. Disposal Method: Follow all applicable Federal, State, and local laws, rules, and regulations regarding the proper disposal of this material

Section VIII: Control Measures/ PPE Requirements

Engineering Controls:	Minimize dust generation and accumulation. Avoid breathing dust. Keep exposure below the exposure limits listed in Section III.
Personal Protective Equipment:	<p>Eye Protection: Irritating to eyes. Wear protective safety goggles when dust generation is likely.</p> <p>Skin Protection: Wear clothing sufficient to cover the skin, safety shoes, and leather gloves for hand protection against dry material.</p> <p>Respiratory Protection: Use NIOSH/MSHA approved respiratory protection (air purifying or air supplying) when concentrations are above exposure limit value. A respiratory protection program that meets OSHA 29 CFR part 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respirator.</p>

Good Hygienic Practice:

Wash thoroughly after using product. Wash contaminated clothing. Wash hands before eating or drinking.

Section IX: Physical and Chemical Properties

Bulk density:	See Tech Data Sheet	Freeze Point:	Solid at STP	% volatile by vol:	0% H ₂ O
Water solubility:	Insoluble	Melting Point:	535 °C	Vapor Density:	N/A
pH: (10% aqueous slurry)	N/A	Boiling Point:	N/A	Vapor Pressure:	N/A
Appearance and Odor:	Black to brownish black; no odor				

Section X: Stability/ Reactivity Data

Stability:	Stable under normal conditions of storage.
Conditions to Avoid:	None under normal conditions.
Incompatibility (materials to avoid):	Readily combustible materials; sulfur, sulfides, phosphides, chlorates, aluminum powder. Reacts with hydrochloric acid to form corrosive chlorine gas. Keep away from all organics and acids.
Hazardous Decomposition or Byproducts:	Exposure to acid may liberate a small amount of hydrogen sulfide
Hazardous Polymerization:	Will not occur.

Section XI: Toxicological Properties

<u>Component</u>	<u>CAS</u>	<u>RTECS Toxicity</u>
Manganese Compound	1313-13-9	LD50 >3478 mg/kg Rat

Section XII: Ecological Information

Material derived from mineral ores. No data available on any adverse effects of this material on the environment.

Section XIII: Disposal Considerations

Disposal Method: This product is generally suitable for landfill disposal. Follow all applicable Federal, State and local laws regarding proper disposal. If this product has been altered or contaminated with other hazardous materials, appropriate waste analysis may be necessary to determine method of disposal.

Section XIV: Transportation Information

USDOT: Not regulated

Section XV: Regulatory

RCRA:	No	
SARA 311/312:	Yes	
SARA 313:	Manganese Dioxide	45-55% Mn
	Barium Oxide	0.1-1.8% Ba

TSCA: Not Regulated

Section XVI: Other Information

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