OREGON RESOURCES CORPORATION

Material Safety Data Sheet

FOR INDUSTRIAL USE ONLY

High Iron (Fe)

1. Product and company identification

Product name	High Iron (Fe)
MSDS Number	003
Product Type	Iron Sand
Product use	Foundry Core and Mold/Mould Applications
Manufacturer, Importer, Supplier	Oregon Resources Corporation 63776 Mullen Road Coos Bay, OR 97420
Print date	20-MAY-2011
Telephone	**For Emergency Medical Assistance** Call Health & Safety Information Services, 541-217-4696

2. Hazards identification

Form	Free flowing granules
Odor	Odorless/Odourless
OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Potential acute health effects

Inhalation	Slightly irritating to the respiratory system.
Ingestion	Not expected to be harmful under normal conditions of use.
Skin	Slightly irritating to the skin.
Eyes	Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects	Contains material that can cause target organ damage. Can cause fibrotic lung disease.
Carcinogenicity	Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	No known significant effects or critical hazards.

Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Target organs	Contains material which causes damage to the following organs: lungs, upper respiratory tract, skin, eyes, Review Section 2 and 11 for any additional assessments.

Over-exposure signs/symptoms

Inhalation	Adverse symptoms may include the following: respiratory tract irritation, coughing,
Ingestion	No specific data.
Skin	Adverse symptoms may include the following: irritation, redness,
Eyes	Adverse symptoms may include the following: irritation, watering, redness,
Medical conditions aggravated by over-exposure	Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See section 11 for more detailed information on health effects and symptoms.

3. Composition/Information on ingredients

Ingredient name	CAS number	WT %
Ferrous Oxide	1345-25-1	**45.0 - 55.0**
Titanium Dioxide	13463-67-7	**33.0 - 38.0**
Aluminum Oxide	1344-28-1	**1.0 - 5.0**
Quartz (SiO2)	14808-60-7	**0.1 - 1.0**

*** Any applicable Canadian trade secret numbers will be listed in Section 15.*

4. First aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Protection of first aid personnel	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

Flammability of the product	No specific fire or explosion hazard.
Extinguishing media	
Suitable	Use an extinguishing agent suitable for the surrounding fire.
Not suitable	None known.
Special exposure hazards	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Hazardous combustion products	Decomposition products may include the following materials: metal oxide/oxides,
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

Personal precautions	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Large spill	Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.
Small spill	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Ingredient name	Occupational exposure limits
Ferrous Oxide	**ACGIH TLV Time Weighted Average (TWA)** 3 mg/m3 (inhalable particulate , Particles (Insoluble or Poorly Soluble) Not Otherwise Specified) **ACGIH TLV Time Weighted Average (TWA)** 10 mg/m3 (respirable particulate) **OSHA PEL Time Weighted Average (TWA)** 5 mg/m3 (respirable fraction) **OSHA PEL Time Weighted Average (TWA)** 15 mg/m3 (total dust)
Titanium Dioxide	**ACGIH TLV Time Weighted Average (TWA)** 10 mg/m3 **OSHA PEL Time Weighted Average (TWA)** 15 mg/m3 (total dust)
Aluminum Oxide	**ACGIH TLV Time Weighted Average (TWA)**

	1 mg/m3 (respirable fraction) **OSHA PEL Time Weighted Average (TWA)** 15 mg/m3 (total dust) **OSHA PEL Time Weighted Average (TWA)** 5 mg/m3 (respirable fraction) **OSHA PEL Time Weighted Average (TWA)** 15 mg/m3 (total dust) **OSHA PEL Time Weighted Average (TWA)** 5 mg/m3 (Respirable particulate)
Quartz (Si O2)	**ACGIH TLV Time Weighted Average (TWA)** 0.025 mg/m3 (respirable fraction) **OSHA PEL Z3 Time Weighted Average (TWA)** 10.0 mg/m3 (divided by % SiO2 +2, respirable) **OSHA PEL Z3 Time Weighted Average (TWA)** 30.0 mg/m3 (divided by %SiO2+2, total dust)

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
Engineering measures	Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Respiratory	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Form	Free flowing granules
Flash point	Non-flammable.
Auto-ignition temperature	Not applicable.
Flammable limits	
Lower:	Not defined for solids (See MEC)
Upper:	Not defined for solids
Color	Tan.
Odor	Odorless/Odourless
pH	Not applicable.
Boiling point	Not applicable.
Relative density	Approx. 2.65
Vapor pressure	Not applicable.
Viscosity	Dynamic- Not applicable.
Solubility	Negligible
Partition coefficient: n-octanol/water	Not applicable.
Evaporation rate	Not applicable.
Vapor density	Not applicable.

10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	Avoid exposure - obtain special instructions before use.
Materials to avoid	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Other Toxicological Information

Carcinogenicity

Conclusion/Summary **Titanium Oxide/Dioxide:** Inhalation at approximately 50 times the level permitted in an occupational environment caused a slight increase in lung tumor incidence in laboratory animals. No tumors were found at lower exposure levels.

Classification

Ingredient name		
Ferrous Oxide	ACGIH	Not classified
	IARC	Not classified
	NTP	Not listed
	OSHA	Not regulated
	EU	Not classified
Titanium Dioxide	ACGIH	Not classifiable as to its carcinogenicity to humans.
	IARC	IARC Group 2B, possibly carcinogenic to humans
	NTP	Not listed
	OSHA	Not regulated
	EU	Not classified
Aluminum Oxide	ACGIH	Not classifiable as to its carcinogenicity to humans.
	IARC	Not classified
	NTP	Not listed
	OSHA	Not regulated
	EU	Not classified
Quartz (SiO2)	ACGIH	Suspected human carcinogen
	IARC	The agent (mixture) is carcinogenic to humans. (Group1)
	NTP	Known to be a human carcinogen.
	OSHA	Not regulated
	EU	Not classified

12. Ecological information

Environmental effects

No known significant effects or critical hazards.

Aquatic ecotoxicity

Ingredient name

Ferrous Oxide

Fresh water	Acute LC50 > 10,000 mg/l/4 d	Western mosquitofish

Other adverse effects

No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR		Non-regulated		
TDG		Non-regulated		
IMO/IMDG		Non-regulated		
IATA (Cargo)		Non-regulated		

*PG : Packing group

15. Regulatory information

US regulations

HCS Classification Carcinogen, Target organ effects

U.S. Federal regulations

SARA 311/312 Classification Delayed (chronic) health hazard

SARA 313 - Supplier Notification

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

Aluminum Oxide **-** 1344-28-1 (18-22%)

SARA 302 Extremely Hazardous Substances None required.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants None required.

State regulations

Massachusetts RTK Substances The following components are listed: Aluminum Oxide

New Jersey RTK Hazardous Substances The following components are listed: , Titanium Dioxide, Aluminum Oxide, Quartz (SiO2)

Pennsylvania RTK Hazardous Substances The following components are listed: , Titanium Dioxide, Aluminum Oxide, Ferrous Oxide, Quartz (Sio2)

California Prop. 65: WARNING: This product contains a chemical known to the State of California to cause cancer. **Quartz (SiO2)**

Canada

WHMIS (Canada)

Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI: The following components are listed: Aluminum Oxide,

International regulations

Chemical inventories

Australia inventory (AICS) All components are listed or exempted.
Canada inventory All components are listed or exempted.
Japan inventory All components are listed or exempted.
China inventory (IECSC) All components are listed or exempted.
Korea inventory All components are listed or exempted.
New Zealand Inventory (NZIoC) Not determined.
Philippines inventory (PICCS) Not determined.
United States inventory (TSCA 8b) All components are listed or exempted.

16. Other information

Hazardous Material Information System III (U.S.A.)

Health : 1
Flammability: 0
Physical hazards : 0
Chronic : *

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

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