

MSDS CODE: RO5  
 Date Revised: 04/28/2009  
 Prepared By: Nick Paris

Reason for Revision: See Section 16

## 1. CHEMICAL, PRODUCT AND COMPANY IDENTIFICATION:

Product Code(s): 3105, 3130, 3135, 206M, 208M, 212M, 214M, 216M, 218M, 224M, 226M, 228M, C1808  
 Product Name: Ferroxide® Red, Iron Oxide Red  
 Chemical Family: Inorganic Metal Oxide  
 Synonyms: Micronized Synthetic Iron Oxide, Iron (III) Oxide  
 C.A.S. Number: 1309-37-1  
 EINECS Number: 215-168-2  
 Color Index Name: CI Pigment Red 101  
 Color Index Number: CI No. 77491  
 Formula: Fe<sub>2</sub>O<sub>3</sub>

### Supplier's Name/Address:

Rockwood Pigments, 7011 Muirkirk Road, Beltsville, Maryland, USA 20705  
 Business Tel: (301) 210-7800 9a-5p (0900-1700) EST M-F  
 Rockwood Pigments, 3700 East Olympic Boulevard, Los Angeles, California, USA 90023  
 Business Tel: (323) 269-7311 9am-5pm (0900-1700) PST M-F

24 Hour Emergency (Chemtrec): 800-424-9300

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA Hazardous Ingredients (29CFR1910.1200):			Exposure Limits (8 Hrs.TWA)	
Components:	C.A.S.	%	OSHA PEL	ACGIH TLV
Iron Oxide Red (Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1	(Min 97%)	Not established.	10mg/m <sup>3</sup>
Silicon Dioxide-Amorphous (SiO <sub>2</sub> ) (SiO <sub>2</sub> inhaleable particles 3 mg/m <sup>3</sup> , PEL (OSHA) 80 mg/m <sup>3</sup> % SiO <sub>2</sub> (8h TWA)	7631-86-9	(Max 1.5%)	6 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Non-Hazardous Ingredients:			Exposure Limits (8 Hrs.TWA)	
Components:	C.A.S.	%	OSHA PEL	ACGIH TLV

## 3. HAZARDS IDENTIFICATION

\*\*\*\*\* EMERGENCY OVERVIEW \*\*\*\*\*

Dry, orange/red powder with little to no odor. Will not burn or react. Long-term inhalation can cause lung irritation or siderosis. Packaging material can burn or melt in fire, producing toxic smoke and fumes.

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HMIS Codes: H=0, F=0, R=0, P=1 (0=Minimal, 1=Slight, 2=Moderate, 3=Serious, 4=Severe)

### Potential Health Effects:

Eye Contact: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and/or cause unpleasant deposits.  
 Skin Contact: Will not irritate skin and is not likely to cause allergic skin reaction. Irritation to skin or mucous membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.  
 Ingestion: Small amounts (a tablespoonful) swallowed are not likely to cause injury. Ingestion of very large quantities may result in stomachache, vomiting, intestinal obstruction, and/or constipation.  
 Inhalation: As with all dusty materials, inhalation may cause respiratory irritation, sneezing, coughing, and runny nose. Wear respirator and avoid breathing dust.

### Human Effects and symptoms of overexposure:

Acute: To date, adverse health effects from exposure have not been reported among workers using this pigment. On the basis of Animal Toxicity Data (see Section 11), we would expect this product to be non-irritating to the eyes and skin and essentially non-toxic by ingestion. However, excessive exposure to airborne dust may reduce visibility and/or cause unpleasant deposits in the eyes, ears and nose. Irritation to skin or mucous membranes can occur by direct mechanical action or by rigorous skin cleaning necessary for removal of dust.

Chronic: None known.

Other Effects: No chronic effects are known from repeated exposure to iron oxide PIGMENT. Prolonged inhalation (6 to 10 years) of iron oxide FUME has been reported to produce changes in lung x-rays

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of exposed individuals. This condition, siderosis, is considered to be benign pneumoconiosis that exhibits no adverse health effects. Siderosis has been observed among occupations such as arc-welders where iron oxide FUMES are present. To the best of our knowledge, this condition has not been observed after prolonged exposure to iron oxide pigment. There is no Iron Oxide FUME contained in this product and none should be generated under normal use.

Medical Conditions: None known

Aggravated by Exposure:

Carcinogenicity:

Other:

IARC: Not Listed

NTP: Not Listed

OSHA: Not regulated

IARC and NTP both contain listings for underground hematite mining. These listings are for the occupational exposures associated with the mining process which include radon, a known lung carcinogen. NIOSH in the Registry of Toxic Effects of Chemical Substances (RTECS) lists Iron Oxide as a suspect human carcinogen. However, the IARC reference to underground hematite mining is the source for this classification. Based on information currently available, this product is not considered a carcinogen.

#### 4. FIRST AID MEASURES

- Eye Contact: Flush eyes with water, lifting eyelids periodically. Remove contact lenses. Continue flushing for 15 minutes or until eyes return to normal. Get medical attention if irritation develops or persists.
- Skin Contact: Wash with soap and water. Get medical attention if irritation develops or persists. Wash clothing before re-use.
- Ingestion: Swallowing less than an ounce (less than 30 grams) will not cause harm. For larger amounts, do not induce vomiting, but give one or two glasses of water (8 to 10 oz/240 to 300 ml) to drink and Contact medical personnel or poison control center immediately. Do not give anything by mouth if person is rapidly losing consciousness or is unconscious or convulsing.
- Inhalation: Move from dusty area to fresh air and get medical attention for any breathing difficulty. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get immediate medical attention.

#### 5. FIRE FIGHTING MEASURES

- Flammable Properties: Not flammable and non-combustible.
- Flash Point: Will not flash. There is no explosion risk with dust of this product.
- Upper Explosive Limit (UEL): Will not explode
- Lower Explosive Limit (LEL): Will not explode
- Auto-ignition Temperature: This is a heat stable material. Will not auto-ignite
- Extinguishing Media: This product is not combustible or flammable. Use extinguishing agents that are suitable to the surrounding fire; water spray, dry chemical, foam or CO<sub>2</sub>
- Fire fighting Instructions: Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes and smoke inhalation.

#### 6. ACCIDENTAL RELEASE MEASURES

- Small Spill: If dust is generated, use appropriate respiratory protection. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust.
- Large Spill: Use recommended protective clothing and respiratory protection. Use shovel to reclaim material. Vacuum or scoop material into an appropriately marked container for re-use or disposal. Avoid excessive generation of dust. It is more effective to clean this product while dry by vacuuming or sweeping. However, spill area can be washed with water. Collect wash water for approved disposal. Prevent runoff from entering storm sewers and ditches which lead to natural waterways.

#### 7. HANDLING AND STORAGE

- Storage: Store dry at ambient temperature away from food and beverages, excessive heat or flame sources (furnace, kilns, boilers etc.). Keep separate from substances subject to catalytic decomposition by dust, e.g peroxides.
- Handling: Avoid breathing dust. Avoid getting in eyes or on skin. Wash hands thoroughly after handling. Avoid contact with moisture. Re-seal bag immediately after use. Pallets are wrapped in polyethylene plastic. Removal may cause an electrostatic spark; therefore removal of the wrap should not be in the presence of flammable vapors.

Storage Temperature (Min/Max) ..... : Ambient/50°C (122°F)

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Shelf Life ..... : Unlimited in closed container  
 Special Sensitivity ..... : None  
 Other Precautions ..... : None

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Maintain air levels below the recommended exposure limit using process enclosure and exhaust ventilation if necessary. Supply sufficient replacement air to make up for air removed by exhaust systems. If engineering controls and work practices are not effective in controlling exposures, appropriate personal protective equipment including a NIOSH/OSHA approved dust respirator should be worn.

Eyes: Wear Safety Glasses with side shields or goggles. Eye wash stations should be available in workplace.

Skin: Wear body-covering clothing closed at wrists and ankles. Rubber, PVC, or Leather gloves are suggested to facilitate personal hygiene.

Respiratory Protection: Workplace ambient dust concentrations should be monitored and if the recommended exposure limit is exceeded, a NIOSH/MSHA approved respirator with dust prefilter should be worn.

Other: Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous chemicals.

Work/Hygiene Practices: Employees should wash their hands and face before eating, drinking or using tobacco products.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance..... : Solid Orange/Red Powder  
 Odor ..... : Odorless  
 Physical State ..... : Dry Powder  
 pH ..... : 5 - 9 in 100 gr/l H<sub>2</sub>O aqueous suspension; DIN 787/9  
 Vapor Pressure ..... : Not a vapor  
 Vapor Density ..... : Not a vapor  
 Boiling Point ..... : Not applicable  
 Freezing Point ..... : Not applicable  
 Melting Point ..... : Greater than 1000°C (1832°F)  
 Solubility ..... : Insoluble in water and organic solvents, dispersible; soluble in acids.  
 Specific Gravity (g/ml)..... : approximately 5.0 @ 20°C (68°F); DIN 787/10  
 Bulk Density (kg/m<sup>3</sup>)..... : 400 to 1400 @ 20°C (68°F)  
 Particle Size (microns)..... : 0.08-0.5  
 Volatile Organic Compounds (VOC) ..... : None Contained  
 Chemical Formula..... : Fe<sub>2</sub>O<sub>3</sub>

## 10. STABILITY AND REACTIVITY

Chemical Stability (Conditions to Avoid): This is a stable material  
 Incompatibility (materials to avoid): Substances subject to catalytic decomposition caused by dust such as peroxides. Further avoid contact with aluminum dust, calcium hypochlorite, hydrazine, ethylene oxide, caesium carbide.

Decomposition Temperature C° (F°): Does not decompose  
 Hazardous Decomposition Products: None  
 Hazardous Polymerization: Will not occur

## 11. TOXICOLOGICAL INFORMATION

Eyes: Not irritating to rabbit eyes  
 Skin: Not irritating to rabbit skin Dermal, LD 50 not established for product  
 Ingestion: Non irritating. The oral, LD50 for iron oxide in rats is greater than 5000 mg/Kg. The oral LD50 for amorphous silica is 10000 mg/Kg. This product is non-toxic.

Inhalation: Non irritating. LC 50 not established for product  
 Subchronic: Data not established for product  
 Chronic/Carcinogenicity: Data not established for product  
 Other (Mutagenic, Teratogenic, Reproductive): The IARC monograph on underground hematite mining (1972) states,

# MATERIAL SAFETY DATA SHEET

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Tests): "No carcinogenic effects were observed in mice, hamsters, or guinea pigs given ferric oxide intratracheally."

## 12. ECOLOGICAL INFORMATION

Ecotoxicological Information: Fish toxicity: Golden Orfe (*Leuciscus idus*) LCo greater than 1000 mg/l.  
 Chemical Fate Information: No appreciable bioconcentration is expected in the environment. This product is insoluble in water and can be separated by sedimentation. No ecological problems have been identified with this product.

## 13. DISPOSAL CONSIDERATIONS

Material which cannot be re-used should be disposed in accordance with federal, state and local environmental control regulations at an authorized site by an approved contractor. Product and packaging can be disposed of or recycled as non-hazardous waste. Not a RCRA hazardous waste. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40CFR 261.20-24). For EC waste disposal directives, see section 15.

## 14. TRANSPORT INFORMATION

DOT Shipping Name..... : None  
 Technical Shipping Name ..... : Inorganic Oxide  
 DOT Hazardous Classification..... : Non-Regulated. This product is not classified as a dangerous substance under the Classification; Packaging and Labeling of Dangerous Goods Act (GGVS/GGVE/RID/IMDG-CODE/TCAO/IATA/DGR).  
 DOT Hazard Class..... : Non-Regulated  
 DOT Identification Number ..... : None  
 DOT Labels required..... : None. No specific transportation precautions required.  
 DOT Placards required ..... : None  
 UN Class..... : None  
 UN/NA Number ..... : None  
 Freight Class..... : Iron Oxide, NOI (Inorganic Oxide)

## 15. REGULATORY INFORMATION

\*\*\*\*\* U.S. Federal Regulations \*\*\*\*\*

OSHA: This product is not considered Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).  
 CERCLA/SUPERFUND: (40 CFR 117,302) Reportable Quantity (RQ):  
 Iron oxide is not a CERCLA hazardous substance and not reportable. however, we recommend you contact local authorities to verify requirements for your site.

Superfund Amendments and Reauthorization Act (SARA), Title III:  
 Section 302/304 (Extremely Hazardous Substances): None, not listed  
 Section 311/312 (Hazard Categories): Delayed Health Hazard  
 Section 313 (Reportable Toxic Ingredients):  
 Chemical Name: C.A.S. Concentration  
 None Reportable

RCRA: Unused iron oxide is not a hazardous waste if disposal is required.  
 T.S.C.A.: Iron oxide is listed on TSCA Inventory.

\*\*\*\*\* International Regulations \*\*\*\*\*

Canadian WHMIS: Not restricted/non-hazardous  
 Canadian Environmental Protection Act (CEPA): Iron oxide is on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.  
 EINECS: Iron oxide is on the European Inventory of Existing Commercial Chemical Substances inventory list.

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Iron oxide and amorphous silica are not classified as hazardous by EC directive 67/548/CEE. This compound is not classified as hazardous by EC directive 1999/45/CE. Dangerous Preparations Directive 88/379/EEC does not apply to this product.

Complies with EC Directives: 91/156/CEE waste, 91/689/CEE hazardous waste, 94/62/CE packaging and packaging waste, 96/61/CE IPPC, 98/24/CE protection of workers from chemical hazards at work, 1999/45/CE on preparations, 2001/59/CE on 28<sup>th</sup> amendment of 67/548/CE.

Information on Label: No special requirements.

Control of Substances Hazardous to Health (COSHH) Apply in the UK.

Regulations 1999:

\*\*\*\*\* State Regulations \*\*\*\*\*

California Proposition 65 Warning: This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

- CA = California Safe Drinking Water and Toxic Enforce Act (Proposition 65)
- CN1 = Canada WHMIS Ingredient Disclosure List over 1%.
- MA = Massachusetts Hazardous Substance List
- NJ4 = New Jersey Other- included in 5 predominant ingredients >1%
- PA3 = Pennsylvania Non-hazardous present at 3% or greater

Chemical Name:	C.A.S.	Concentration	State Code
Iron Oxide Red	1309-37-1	above 97%	PA3,NJ4,CN1
Arsenic	7440-38-2	<100 ppm	CA,MA
Cadmium	7440-43-9	<5 ppm	CA,MA
Mercury	7439-97-6	<1 ppm	CA
Nickel	7440-02-0	<400 ppm	CA,MA
Lead	7439-92-1	<100 ppm	CA,MA

Note: This information based on random sample analyses. Actual content may vary from batch to batch.

## 16. OTHER INFORMATION

- Reason for revision:
- 7/22/2003 - Add European regulation status, section 15.
  - 9/9/2004 - Revised composition section 2.
  - 1/11/2006 - Updated review date.
  - 4/28/2009 - Updated review date.

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