

MSDS CODE: RO3
 Date Revised: 01/11/2006
 Prepared By: Nick Paris
 Reason for Revision: See Section 16

1. CHEMICAL, PRODUCT AND COMPANY IDENTIFICATION:

Product Code(s): 103, 116, 3121, 3171, 3175, 3176, 3177, 4758, 10215, 10223, 10253, 10318, 10329, 10373, 10374, 107J, 116G, J3121, J3125, J3175, L1456
 Product Name: Iron Oxide Red, Natural Iron Oxide Red
 Chemical Family: Inorganic Metal Oxide
 Synonyms: Iron Oxide, Iron (III) Oxide
 C.A.S. Number: 1309-37-1
 Color Index Name: Pigment Red 101
 Color Index Number: 77491

Manufacturer's Name/Address:
 Rockwood Pigments/Davis Colors, 7011 Muirkirk Road, Beltsville, Maryland, USA 20705
 Business Tel: (301) 210-7800 9a-5p (0900-1700) EST M-F
 Rockwood Pigments/Davis Colors, 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 |
| Silicon Dioxide | 7631-86-9 | (<1) | 6 mg/m ³ | 10 mg/m ³ |
| Iron Oxide (red) | 1309-37-1 | (40-80%) | Not established | Not established |
| Calcium Carbonate CaCO ₃ | 1317-65-3 | (20-60%) | 15 mg/m ³ | 10 mg/m ³ |

| Non-Hazardous Ingredients: | | | Exposure Limits (8 Hrs.TWA) | |
|----------------------------|--------|---|-----------------------------|-----------|
| Components: | C.A.S. | % | OSHA PEL | ACGIH TLV |
| None | | | | |

3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW *****
 Dry, 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.

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

Potential Health Effects:

Eyes: Non-irritating to the eyes. Excessive exposure to airborne dust may reduce visibility and/or cause unpleasant deposits.
 Skin: 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 amount (less than one ounce/30 grams) swallowed is not likely to cause injury. If large amount ingested, may cause gastric irritation, nausea and diarrhea. Seek medical attention.
 Inhalation: Not a hazard in normal industrial use. Wear respirator and avoid breathing dust. As with all dusty materials, inhalation may cause respiratory irritation, sneezing, coughing, and runny nose.

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.

MSDS CODE: RO3
Date Revised: 01/11/2006
Prepared By: Nick Paris

Page 2 of 5

Reason for Revision: See Section 16

Chronic: Prolonged inhalation of amorphous silica may produce x-ray changes in the lungs without disability.

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 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:

IARC: Not Listed

NTP: Not Listed

OSHA: Not regulated

Other:

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

Eyes: 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: 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 to drink and Contact medical personnel or poison control center immediately. Do not give anything by mouth to an unconscious person.

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.

Flash Point: Will not flash.

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 for the surrounding fire: water spray, dry chemical, foam, or CO₂.

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. 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

MSDS CODE: RO3
 Date Revised: 01/11/2006
 Prepared By: Nick Paris

Reason for Revision: See Section 16

sources (furnace, kilns, boilers etc.). Avoid breathing dust. Avoid contact with eyes and skin. Wash thoroughly after handling.

Handling: Avoid breathing dust. Avoid getting in eyes or on skin. Wash 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)
 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 exhaust ventilation if necessary.
 Eyes: Safety Glasses.
 Skin: Body-covering clothing. Rubber, Plastic, Leather or cloth 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 Red Powder
 Odor : Odorless
 Physical State : Dry Powder
 pH : 4 - 8 in 50 gr/l H₂O 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 in Water : Insoluble
 Specific Gravity (g/ml) : 4.5 to 5.0 @ 20°C (68°F); DIN 787/10
 Bulk Density (kg/m³) : 600 to 1000 @ 20°C (68°F)
 Particle Size (microns) : 0.3-0.6
 Volatile Organic Compounds (VOC) : None
 Chemical Formula : Fe₂O₃+ CaCO₃

10. STABILITY AND REACTIVITY

Chemical Stability (Conditions to Avoid): This is a stable material
 Incompatibility (materials to avoid): No known material incompatibilities
 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 rats is greater than 5000 mg/l
 Inhalation: Non irritating. LC 50 not established for product

MSDS CODE: RO3
 Date Revised: 01/11/2006
 Prepared By: Nick Paris
 Reason for Revision: See Section 16

Subchronic: Data not established for product
 Chronic/Carcinogenicity: Data not established for product
 Other (Mutagenic, Teratogenic, Reproductive Tests): The IARC monograph on underground hematite mining (1972) states, "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.

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. This product when discarded as sold is 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)

14. TRANSPORT INFORMATION

DOT Shipping Name..... : None
 Technical Shipping Name..... : Inorganic Oxide
 DOT Hazardous Classification : Non-Regulated
 DOT Hazard Class..... : Non-Regulated
 DOT Identification Number : None
 DOT Labels required : None
 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):
 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 (Extremely Hazardous Substances): None
 Section 311/312 (Hazard Categories): Delayed Health Hazard
 Section 313 (Reportable Toxic Ingredients):
 Chemical Name: C.A.S. Concentration
 None Reportable

T.S.C.A.: This product is listed on TSCA Inventory.

***** International Regulations *****

Canadian WHMIS: Not restricted/non-hazardous
 Canadian Environmental Protection Act (CEPA): All components of this product are on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.
 EINECS: All components of this product are on the European Inventory

MATERIAL SAFETY DATA SHEET

MSDS CODE: RO3
 Date Revised: 01/11/2006
 Prepared By: Nick Paris
 Reason for Revision: See Section 16

of Existing Commercial Chemical Substances (EINECS).

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 | 40-80% | PA3,NJ4,CN1 |
| Lead | 7439-92-1 | <100 ppm | CA,MA |
| Cadmium | 7440-43-9 | <5 ppm | CA,MA |
| Arsenic | 7440-38-2 | <100 ppm | CA,MA |
| Copper | 7440-50-8 | <800 ppm | MA |
| Mercury | 7439-97-6 | <1 ppm | CA |
| Nickel | 7440-02-0 | <400 ppm | CA,MA |
| Silicon Dioxide | 7631-86-9 | <1% | PA3,NJ4 |
| Calcium Carbonate CaCO ₃ | 1317-65-3 | 20-60% | PA3,NJ4 |

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

16. OTHER INFORMATION

- Reason for revision: New MSDS format, re-issue
- 11/29/2004 - Removed Iron Oxide Fume from ingredients, Section 2, as it is not contained in this product.
 - 11/29/2004 - Moved Calcium Carbonate CaCO₃ to Hazardous Ingredients, Section 2.
 - 1/11/2006 - Removed Calif Prop 65 listing for Copper in section 15

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

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of the Manufacturer. The data on this sheet relates only to the specific material designated herein. It may not be valid for this material if used in combination with any other materials or process. It is the user's responsibility to verify suitability and completeness of this information for their own particular use. The Manufacturer assumes no legal responsibility for use or reliance upon these data.