



# MATERIAL SAFETY DATA SHEET

Ferro Corporation  
 Electronic Material Systems  
 4511 Hyde Park Blvd  
 P.O. Box 67  
 Niagara Falls, NY 14305-0067 USA

Emergency telephone number:  
 CHEMTREC: 1-800-424-9300

Phone Number: 1-716-278-9400

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**Product Name:** Reflux® 61 Milled Rutile  
**Chemical Name:** Titanium Dioxide  
**Product code:** 1014113

Date of Preparation: 07/29/2004

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

### Exposure limits

Components	CAS-No	Weight %	OSHA	ACGIH
Titanium Dioxide	13463-67-7	95 - 99%	15 mg/m <sup>3</sup> TWA	10 mg/m <sup>3</sup> TWA
Chromium(III) oxide	1308-38-9	0.1 - 0.5%	0.5 mg/m <sup>3</sup> TWA 1 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA as Cr

OSHA particulate (not otherwise regulated) limit: 5 mg/m<sup>3</sup> (respirable); 15 mg/m<sup>3</sup> (total).

## 3. HAZARDS IDENTIFICATION

### Emergency Overview

Caution

NFPA 704

<b>Color:</b>	White	<b>Health:</b>	1
<b>Physical state:</b>	Powder crystalline	<b>Fire:</b>	0
<b>Odor:</b>	Odorless	<b>Instability:</b>	0

Avoid dust formation. May cause physical irritation.

### Potential Health Effects

**Principle routes of exposure:** Inhalation, ingestion, skin and eye contact.

**Eye contact:** May cause slight irritation. Resin particles, like other inert materials, are mechanically irritating to eyes.

**Skin contact:** Prolonged skin contact may cause skin irritation and/or dermatitis.

**Inhalation:** Product dust may be irritating to eyes, skin and respiratory system. Over-exposure by inhalation may cause respiratory irritation.

**Ingestion:** May irritate digestive tract.

**Chronic toxicity:** Excessive inhalation of dust may cause chemical pneumonitis, cyanosis, and pulmonary edema.

### HMIS

**Health:** 1  
**Fire:** 0  
**Physical hazard:** 0  
**PPE:** E

## 4. FIRST AID MEASURES

**Eye contact:** Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops.

**Skin contact:** Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms persist, call a physician.

**Ingestion:** Drink plenty of water. Consult a physician if necessary. Do not induce vomiting without medical advice.

**Notes to physician:** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Flash point:** No data available

**Suitable extinguishing media:** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Hazardous decomposition products:** Thermal decomposition can lead to release of irritating gases and vapors.

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

**Unusual hazards:** None known.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Fine dust dispersed in air may ignite.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

**Methods for cleaning up:** Use approved industrial vacuum cleaner for removal. Wear personal protective equipment. Dispose of promptly.

## 7. HANDLING AND STORAGE

**Handling:** Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Provide appropriate exhaust ventilation at places where dust is formed. Remove all sources of ignition. Wash hands thoroughly before eating, drinking or smoking.

**Storage:** Keep container tightly closed in a dry and well-ventilated place.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering measures:** Ensure adequate ventilation, especially in confined areas.

**Respiratory protection:** Use NIOSH approved respirator when ventilation is inadequate.

**Hand protection:** Impervious gloves.

**Skin and body protection:** Lightweight protective clothing.

**Eye protection:** Safety glasses with side-shields.

**Exposure limits:** See Section 2.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Color:</b>	White	<b>Physical state:</b>	Powder crystalline
<b>Odor:</b>	Odorless	<b>Molecular weight:</b>	No data available
<b>Boiling point/range (°C):</b>	No data available	<b>pH:</b>	No data available
<b>Melting point/range (°C):</b>	1560 - 1840	<b>Specific gravity (Water =1):</b>	3.8 - 4.3
<b>Vapor pressure (mmHg):</b>	no data available	<b>Evaporation rate (Water =1):</b>	no data available

Water solubility (mg/l):

Insoluble

VOC content (%)

No data available

## 10. STABILITY AND REACTIVITY

**Stability:** Stable at normal conditions.

**Polymerization:** Will not occur.

**Hazardous decomposition products:** None under normal use.

**Materials to avoid:** None known.

**Conditions to avoid:** Avoid dust formation.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Titanium Dioxide

**ACGIH - Carcinogens:** A4 - Not Classifiable as a Human Carcinogen

#### Chromium(III) oxide

**ACGIH - Carcinogens:** A4 - Not Classifiable as a Human Carcinogen

## 12. ECOLOGICAL INFORMATION

### Components

Ecotoxicity - Fish Species Data:

#### Chromium(III) oxide

= 4.4 mg/L LC50 rainbow trout (juveniles) 96 h  
= 5.07 mg/L LC50 fathead minnow 96 h

Ecotoxicity - Water Flea Data:

= 168 mg/L LC50 water flea 96 h  
= 2 mg/L LC50 water flea 96 h

**Persistence and degradability:** No information available

## 13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:** Waste must be disposed of in accordance with federal, state and local environmental control regulations. Where possible recycling is preferred to disposal or incineration.

## 14. TRANSPORT INFORMATION

### DOT:

**Proper shipping name:** Not regulated.

#### Chromium(III) oxide (0.1 - 0.5%)

CERCLA/DOT RQ: 2270 kg 5000 lb

### TDG (Canada):

**Proper shipping name:** Not regulated.

## 15. REGULATORY INFORMATION

### U.S. Regulations:

**Not subject to TSCA 12(b) Export Notification**

#### Chromium(III) oxide (0.1 - 0.5%)

**SARA 313:** 1.0 percent de minimis concentration  
1.0 percent de minimis concentration (Chemical Category N090)

**State Regulations**

This product or its ingredients have been evaluated for New Jersey, Pennsylvania, and California Prop 65 supplier notification requirements. Substances that are subject to notification requirements, if any, are listed below.

Titanium Dioxide (95 - 99%)

**NJRTK:** sn 1861

**PARTK:** Listed

Chromium(III) oxide (0.1 - 0.5%)

**NJRTK:** sn 0434

**Canadian WHMIS**

WHMIS hazard class: D2B Toxic materials.

**Components**

Chromium(III) oxide (0.1 - 0.5%)

**WHMIS Ingredient Disclosure:**

1%

**International Inventories**

TSCA 8(b): All the ingredients are on the TSCA list.

Canadian DSL: All the ingredients are on the DSL.

EINECS: All the ingredients are on the EINECS list.

Phillipines (PICCS): Listed.

Japan (ENCS): Listed.

Korea (KECL): Listed.

China (IECS): Listed.

Australia (AICS): Listed.

**16. OTHER INFORMATION**

**For Industrial Use Only**

**Prepared by:** Ferro Technical Center

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

**End of Safety Data Sheet**