



# MATERIAL SAFETY DATA SHEET

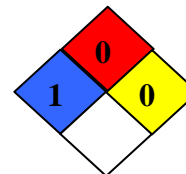
Iron Oxide

For more detailed information on the hazards of this product, contact Chemical Safety and Health Department or Medical Services Department at the address below. Technical Information Bulletin may also be available.

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT IDENTIFICATION

Brand Name..... KM Iron Oxide  
Chemical Name..... Ferric oxide  
Common Name..... Iron oxide  
Formula..... Fe<sub>2</sub>O<sub>3</sub>  
Molecular Weight..... 159.70  
Product Use..... Cement Manufacture, Slagging, Coal Cleaning, Oil Well Drilling  
Product Identification Number..... N/A



### MANUFACTURER

Tronox  
One Leadership Square, Suite 300  
211 N. Robinson Ave.  
Oklahoma City, OK 73102 US

### EMERGENCY TELEPHONE NUMBER

1-866-775-5009 (24 hours)

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

	CHEMICAL NAME	CAS NUMBER	WEIGHT %
	Ferric oxide	1309-37-1	80-90
	Magnesium oxide	1309-48-4	2-5
	Aluminum oxide	1344-28-1	2-5
	Manganese (III) oxide	1317-34-6	2-5
	Inorganic chlorides	N/A	1.5-5
	Titanium dioxide	13463-67-7	1-3

See Section 15 of this MSDS for OSHA Regulatory Status

## 3. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

Brown/black powder or pellets. May cause eye irritation. Inhaling dust can irritate the lungs and may cause lung damage (siderosis).

This material is not flammable and does not support combustion.

### POTENTIAL HEALTH EFFECTS

#### PRIMARY ROUTE(S) OF ENTRY

Inhalation (breathing) and eye contact.

Caution! May cause eye irritation. Breathing dust can irritate the lungs and may cause lung damage (siderosis).

#### SYMPTOMS OF EXPOSURE

Inhalation: Coughing; sneezing; difficult breathing.

Eye Contact: Irritation, tearing.

Skin Contact: Mild irritation.

Ingestion: Stomach pain, vomiting, diarrhea.

#### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Respiratory disease or disorders may be aggravated by exposure to this product.

#### REPORTED AS CARCINOGEN OR POTENTIAL CARCINOGEN

Not Applicable

OSHA

National Toxicology Program (NTP)

International Agency for Research on Cancer (IARC)

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#### 4. FIRST AID MEASURES

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Inhalation: If respiratory irritation develops or if breathing becomes difficult, remove to fresh air. If symptoms persist, seek medical attention.

Eye Contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if worn. Seek medical attention if irritation develops or persists.

Skin Contact: Wash with soap and water. Seek medical attention if irritation develops or persists.

Ingestion: Give 3-4 glasses of water, but DO NOT induce vomiting. If vomiting occurs, give fluids again. Get medical attention to determine whether vomiting or evacuation of the stomach is necessary. Do not give anything by mouth to an unconscious or convulsing person.

#### NOTE TO PHYSICIAN

Chemical exposure to ferric oxide may cause siderosis – a benign pneumoconiosis.

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#### 5. FIRE FIGHTING MEASURES

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Flash Point and Method..... N/A

#### GENERAL HAZARD

This product is not flammable and does not support combustion.

#### EXTINGUISHING MEDIA

Use media appropriate for the material that is burning.

#### SPECIAL FIREFIGHTING INSTRUCTIONS

None

## FIREFIGHTING EQUIPMENT

As in any fire, wear NIOSH approved, positive-pressure self-contained breathing apparatus and full protective gear.

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## 6. ACCIDENTAL RELEASE MEASURES

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Wear appropriate Personal Protective Equipment.

### ON LAND

**Small spills:** Shovel or sweep up; place in containers for later disposal.

**Large spills:** Shovel or sweep up; place in containers. Reclaim for salvage value or dispose of in accordance with federal, state and local regulations.

### IN WATER

Suction or dredge up into a container. Dispose of in accordance with federal, state, and local regulations.

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## 7. HANDLING AND STORAGE

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Wear appropriate protective equipment (See Section 8).

### HANDLING

Avoid contact with eyes, on skin, or on clothing. Avoid breathing dust. Use with adequate ventilation. Wash thoroughly after handling.

### STORAGE

Store in a dry place. Keep container closed.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### ENGINEERING CONTROLS

Provide local exhaust and general ventilation system.

### PERSONAL PROTECTION

**Respirator:** In operations where exposure limits are exceeded, use NIOSH-approved respiratory that has been selected by a technically qualified person for the specific work conditions. If respirators are used, OSHA requires compliance with its respiratory protection program (29 CFR 1910.134)

**Eye Protection:** Wear safety glasses or vented safety goggles.

**Clothing:** Wear rubber gloves and normal work clothing.

**Other:** Eye wash

### EXPOSURE CONTROLS

COMPONENT	OSHA PEL		ACGIH TLV	
	TWA	STEL	TWA	STEL
alpha Alumina – Total dust	15mg/m <sup>3</sup>	N/E	10mg/m <sup>3</sup>	N/E
Respirable fraction	5mg/m <sup>3</sup>			
Iron oxide dust and fume, as Fe	10mg/m <sup>3</sup>	N/E	5mg/m <sup>3</sup>	N/E

COMPONENT	OSHA PEL		ACGIH TLV	
	TWA	STEL	TWA	STEL
Magnesium oxide, fume, Total particulate	15 mg/m <sup>3</sup>	N/E	10 mg/m <sup>3</sup>	N/E
Manganese, inorganic compounds as Mn	N/E	5 mg/m <sup>3</sup> C	0.2 mg/m <sup>3</sup>	N/E
Titanium dioxide	15 mg/m <sup>3</sup>	N/E	10 mg/m <sup>3</sup>	N/E
Uranium, soluble & insoluble compounds as U	0.05 mg/m <sup>3</sup>	N/E	0.2 mg/m <sup>3</sup>	0.6 mg/m <sup>3</sup>

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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State ..... Pellitized or powdered solid  
 Color ..... Brown/Black  
 Odor ..... Odorless  
 Vapor Pressure ..... N/A  
 Melting Point °C ..... 1538 °C (decomposes)  
 Boiling Point °C ..... N/A  
 Bulk Density, lb./cu. Ft. .... 23-150  
 Specific Gravity @ 20 °C .... 4.29  
 Water Solubility ..... Insoluble  
 pH ..... ≈4 (10g/100ml water)

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## 10. STABILITY AND REACTIVITY

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### REACTIVITY

Stable.

### INCOMPATIBILITIES

Aluminum powder, calcium hypochlorite, hydrazine, ethylene oxide, calcium carbide, and strong acids

### HAZARDOUS DECOMPOSITION PRODUCTS

None.

### CONDITIONS TO AVOID

Avoid mixing with incompatible materials.

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## 11. TOXICOLOGICAL INFORMATION

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### For Ferric Oxide

RTECS NO740000

Oral LD<sub>50</sub> (rat) ..... 5,000 mg/kg  
 Intraperitoneal LD<sub>50</sub> (mouse) ..... 5,400 mg/kg  
 Subcutaneous LD<sub>50</sub> (dog) ..... 30 mg/kg

Lung function tests in 14 workers exposed for an average of 10 years to pure ferric oxide dust seem to support the conclusion that the pure substance is not fibrogenic in the lung. (Teculessu, D. and Albu, A; "Pulmonary Function in Workers Inhaling Iron Oxide Dust," *Int. Arch. Arbeitsmed.*, 31(2), 163-170 (1963))

**CARCINOGENICITY INFORMATION**

Iron oxide has been classified by IARC as Group 3 (Unclassifiable as to Carcinogenicity in Humans), and by ACGIH as A4 (Not classifiable as a Human Carcinogen).

Manganese has been classified by EPA as Class D (Not classifiable as to Human Carcinogenicity).

Titanium dioxide has been classified by IARC as Group 3 (Unclassifiable as to Carcinogenicity in Humans), by ACGIH as A4 (Not classifiable as a Human Carcinogen) and by NIOSH as Potential occupational carcinogen, with no further categorization.

Uranium has been classified by ACGIH as A1 (Confirmed Human Carcinogen) and by NIOSH as Potential occupational carcinogen, with no further categorization.

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**12. ECOLOGICAL INFORMATION**

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None available

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**13. DISPOSAL CONSIDERATIONS**

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RCRA Waste Code: .....Not regulated

Observe all applicable federal, state, and local regulations.

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**14. TRANSPORT INFORMATION**

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DOT .....Not regulated

TDG .....Not regulated

IATA .....Not regulated

IMDG .....Not regulated

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**15. REGULATORY INFORMATION**

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OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

Hazardous                       Non-Hazardous

CERCLA/SUPERFUND (40 CFR 117, 302)

Chemical Name	RQ (lbs)/(kg)
Manganese Compounds were designed as Hazardous Air Pollutants under the Clear Air Act Amendments of 1990, and hence are listed as hazardous substances. As such, they are subject to CERCLA clean-up standards and liability; however, release reporting is not required.	None assigned

SAFE DRINKING WATER ACT -SECONDARY MAXIMUM CONTAMINANT LEVELS

Chemical Name	mg/l
Manganese	0.05

SARA EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355)

Chemical Name	RQ (lbs)/(kg)
N/A	

SARA HAZARD CATEGORIES (40 CFR 370)

Acute     Chronic     Fire     Pressure     Reactive     None

SARA TOXIC CHEMICALS (40 CFR 372)

Chemical Name	CAS Number	%
Aluminum oxide (fibrous form)	1344-28-1	2-5
Manganese compounds	N/A	2-5

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (CPR Section (33))

This product has been classified according to the hazard criteria of the Controlled Products Regulations, and the MSDS contains all required information.

Controlled Product; Classification: D2A     Not a Controlled Product.

INVENTORY STATUS

The chemicals in this product are listed on the US TSCA Chemical Substance Inventory and the Canadian Domestic Substances List.

TOXIC SUBSTANCES CONTROL ACT

No specific regulations apply.

STATE REGULATIONS

California Proposition 65 ..... WARNING! This product contains radio nuclides which are known in the State of California to cause cancer.

California Hazardous Substances List....Aluminum metal and oxide, Manganese compounds, Iron oxide fume

Florida Hazardous Substances List.....Iron oxide fume, Magnesium oxide fume.

Massachusetts Right to Know List..... Aluminum oxide, Iron oxide fume and dust, Magnesium oxide fume, Titanium dioxide.

Minnesota Hazardous Substance List..... Aluminum oxide, Iron oxide fume, Manganese, elemental and compounds, (as Mn); Titanium dioxide.

New Jersey Right to Know List ..... Aluminum oxide – Substance No. 2891, Iron oxide fume – Substance No. 1036, Manganese oxide- Substance No. 1159, Manganese trioxide, Substance No. 1159, Magnesium oxide fume – Substance, No. 1144, Manganese Compounds, N.O.S.- Substance No. 2324, Titanium dioxide – Substance No. 1861.

Pennsylvania Right to Know List..... Aluminum oxide, Ferric oxide, Magnesium oxide, fume, dust, Titanium dioxide

Rhode Island Right to Know List.....Aluminum oxide, Ferric oxide fume, Manganese (as MN) fume, Titanium dioxide

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## 16. OTHER INFORMATION

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### ABBREVIATIONS

C - Ceiling limit

ERG – 2000 Emergency Response Guidebook

LC<sub>Lo</sub> - The lowest concentration of a substance in air that will kill a test animal within a certain exposure period.

LC<sub>50</sub> - The concentration of a substance in air that will kill 50% of test animals within a certain exposure period.

LD<sub>50</sub> - The dose that causes death in 50% of test animals.

N/A - Not applicable

N/D - Not determined

N/E - Not established

N/K - Not known

PIN - Product Identification Number

RQ - Reportable Quantity

TPQ - Threshold Planning Quantity

### PREPARATION INFORMATION

Prepared by ..... Safety, Health and Environmental Department

MSDS No. .... B-5031

Date of Preparation: ..... March 6, 2006

Replaces: June 28, 2004

Date of Issue: .. March 2006

### REVISION INFORMATION

Updated to ANSI standard

Section 1: Updated company name, address, and phone number

Section 14: Added IMDG and IATA transportation information

Section 15: Updated Regulatory information