

# MATERIAL SAFETY DATA SHEET

AMERICAN MINERALS  
901 EAST EIGHTH AVENUE  
SUITE 200  
KING OF PRUSSIA, PA 19406

PRODUCT: CHROMITE / CHROME ORE

Phone: HEALTH AND SAFETY: 610/337-1100  
CHEMTRAC, EMERGENCY ASSISTANCE: 1-800-424-9300

Internal ID: AM017  
MSDS: AMCHROMITE  
Date Prepared: 2/92  
Revision Date: 9/97

National Paint  
and Coatings  
Association  
  
Hazardous Material  
Identification  
System

HEALTH HAZARD	2 - Moderate
FLAMMABILITY HAZARD	0 - Minimal
REACTIVITY HAZARD	0 - Minimal
PERSONAL PROTECTION	B - Glasses & Gloves

## SECTION I. MATERIAL IDENTIFICATION

Chemical Name: Chromite / Chrome Ore

Common Names: Chrome Ore, Chromite, Chromite Ore, Iron Chromite, Iron Chromite Ore

Description: Chromite is a mineral composed of a natural oxide of ferrous iron and chromium, with varying amounts of magnesium and aluminum substituting for the iron and chromium respectively. It has the general formula of  $(Fe, Mg)O \cdot (Cr, Fe, Al)_2O_3$ .

CAS#: 1308-31-2

Distributor: American Minerals

Phone: 610/962-5050

## SECTION II. INGREDIENTS AND HAZARDS

Ingredient Name:	CAS Number:	Percent:	Exposure Limits:
Chrome Ore	1308-31-2	100	For Chromium (III) Compounds as /Cr/, ACGIH TLV:TWA is 0.5mg/m <sup>3</sup> . This would equate to a chrome ore dust exposure of 1.62mg/m <sup>3</sup> for a chrome ore containing 45% Cr <sub>2</sub> O <sub>3</sub> . OSHA PEL:TWA for Chromium (III) Compounds Final PEL 0.5mg/m <sup>3</sup> . <u>FOR ORE PROCESSING</u> ; ACGIH TLV:TWA - 0.05mg/m <sup>3</sup> . For ore processing, chrome ore is listed as a Human Carcinogen.

SiO <sub>2</sub>	1-5
FeO	15-25
Al <sub>2</sub> O <sub>3</sub>	10-20
MgO	10-20
CaO	0-1
Cr <sub>2</sub> O <sub>3</sub>	35-45

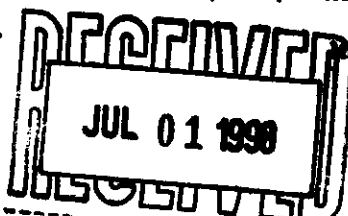
The oxides shown in the "Typical Chemical Analysis" do not exist as free, uncombined oxides, but exist in complex mineralogical combinations.

## SECTION III. PHYSICAL DATA

Appearance and Odor: Chrome ore is usually black, but does show some variation from iron-black to brownish black with some brown streaks. Various grades can vary from large pieces down to fine powders. Chrome ore is odorless.

Apparent Density: 4.3 - 4.5 g/cc. (37 lbs/gal)  
Water Solubility (%): 0, Insoluble in Water

Melting Point: >3400°F  
% volatile by volume: 0



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SECTION IV. FIRE AND EXPLOSION DATA

Extinguishing Media: Chrome ore is not combustible. Use extinguishing media appropriate to combustibles in the surrounding area.

Unusual fire or explosion hazards: None

Hazardous decomposition Products: None

SECTION V. REACTIVITY DATA

Stability: Chrome ore is an inert and stable mineral. Hazardous polymerization will not occur.

Chemical incompatibilities: Chrome ore can react at high temperature with molten alkalis and alkali vapors forming water soluble chromium salts.

Storage: Chrome ore is stable under all normal conditions of storage.

SECTION VI. HEALTH HAZARD INFORMATION

Summary of risks: Exposure to chrome ore presents a low order of risk. The primary health hazard is the excessive inhalation of dust generated during handling operations. The use of chrome ore by customers in chemical processes in which the ore is chemically altered by chemical reaction can produce chromium compounds which present significant health hazards such as: hexavalent chromium compounds produce a corrosive action on any skin and mucous membranes they contact; chromite salts are human and experimental carcinogens of the lungs, nasal cavity and paranasal sinus, and are also experimental carcinogens of the stomach and larynx; the hexavalent (VI) chromium compounds are more toxic than the trivalent (III) compounds. Eczematous dermatitis has been reported for some trivalent chromium compounds. A competent industrial hygienist should be consulted for evaluation of potential health hazards associated with specific chemical processes involving the use of chrome ore.

Medical conditions which may be aggravated by contact: The excessive inhalation of mineral dust may aggravate pre-existing chronic lung conditions such as, but not limited to, bronchitis, emphysema, and asthma.

Target organs: Upper Respiratory System

Primary entry route: Inhalation

Acute Effects: The excessive inhalation of mineral dust can cause a transitory upper respiratory irritation.

Chronic Effects: The chromium in chrome ore is in the trivalent (III) form. Trivalent Chrome oxide ( $Cr_2O_3$ ) is reported to have a low order of toxicity. The IARC - Cancer Review: Animal - Inadequate Evidence. Chrome ore is listed as a human carcinogen in ore processing.

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HEALTH HAZARD INFORMATION continued from page 2

Signs & symptoms of overexposure:

Eye contact: Physical Irritation

Skin contact: Possible irritation from repeated or prolonged contact to individuals sensitive to mineral dust.

Inhalation: Upper respiratory irritation.

First aid:

Eye contact: Flush eyes, including under the eyelids, with large amounts of water. If irritation persists, seek medical attention.

Skin contact: Wash with mild soap and water.

Inhalation: Remove to fresh air.

Ingestion: No data available.

SECTION VII. SPILL, LEAK AND DISPOSAL PROCEDURES

Spill/Leak procedures:

Chrome ore is unreactive and insoluble in water and acids. Reuse all spilled material whenever possible. Thoroughly cleanup spilled material and place into a suitable container, being careful to avoid creating dusty conditions. If conditions warrant clean-up personnel should wear approved respiratory protection, gloves, and goggles to prevent irritation from contact and/or inhalation.

Waste Management/Disposal: This product, as manufactured, does not exhibit any characteristics of a hazardous waste. As shipped, this material does not exceed the RCRA extraction procedure limit of 5 ppm for total soluble chromium. It is suitable for landfill disposal. However, process environments, especially extremely high temperatures may cause chemical reactions which produce substances which will exceed the RCRA limit for soluble chrome, or debris generated during installation, maintenance or tear-out procedures may be contaminated with other hazardous materials. Therefore, testing of waste/debris should be performed to determine the proper waste classification. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state and local regulations.

SECTION VIII. SPECIAL PROTECTION INFORMATION

Personal protective equipment: The use of safety glasses, gloves, and long sleeve clothing is recommended.

Workplace Considerations:

Ventilation:

Provide adequate general ventilation and local ventilation in both sufficient volume and air flow patterns to keep air contaminant concentration levels below allowable limits.

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SECTION IX. REGULATORY INFORMATION

SARA TITLE III INFORMATION:

The product is 100% chrome ore CAS#1308-31-2, which is composed of up to 42% Chromium and reportable under SARA TITLE III Section 313. Chrome ore is included because of definition given in 40 CFR Ch.1 Part 372.65 on chromium compounds. Chrome ore is not listed under SARA TITLE III Sections 302 and 304.

TSCA INVENTORY:

Chrome ore is listed on the Chemical Substance Inventory of the Toxic Substances Control Act (TSCA).

DOT Class: Not Regulated by DOT as Hazardous Material

SECTION X. REFERENCES

- Sax, N. Irving: Dangerous Properties of Industrial Materials, Seventh Edition, Van Nostrand Reinhold Co., Inc., 1989.  
Kirk, R. and Othmer, D., Encyclopedia of Chemical Technology, Third Edition, Wiley-Interscience, New York, NY 1980.  
Clansky, K.B., Suspect Chemicals Sourcebook, 1992-2 Edition, Roytech Publications, Bethesda, Maryland.  
Sax, N. Irving and Lewis, R.J. Hawley's Condensed Chemical Dictionary, Eleventh Ed., Van Nostrand Reinhold Co., Inc., NY

SECTION XI. ACRONYMS/DEFINITIONS USED IN THIS MSDS

ACGIH: American Conference of Governmental Industrial Hygienists  
CAS#: CAS Registration Number is an assigned number to identify a material. CAS stands for Chemical Abstract Service.  
IARC: International Agency for Research on Cancer  
mg/m<sup>3</sup>: Milligrams per cubic meter  
NFPA: National Fire Protection Association  
OSHA: Occupational Safety and Health Administration  
PEL: Permissible Exposure Limit (OSHA)  
SARA: Superfund Amendments and Reauthorization Act  
Title III: Emergency Planning and Community Right to Know Act  
Section 302: Extremely Hazardous Substances  
Section 304: Emergency Release  
Section 313: Toxic Chemicals - Reporting  
TC Rule: Toxicity Characteristic Rule  
TCLP: Toxicity Characteristic Leaching Procedure  
TLV: Threshold Limit Value (ACGIH)  
TSCA: Toxic Substances Control Act  
TWA: Time Weighted Average - 8 hours

Revised by: A.G.Nighswander, September 30, 1997

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