

MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT IDENTIFICATION

Product Name: **Chromium Oxide Powder**
Product Item: 423030
Product Code: HA 3106

Supplier: **HAI Advanced Material Specialists, Inc.**
1688 Sierra Madre Circle
Placentia, CA 92870
(714)-414-0575

Emergency Contact: 888-255-3924
Chemical Family: Metal Oxide
Formula: Cr_2O_3
Molecular Weight: 151.99

SECTION 2 – HAZARDOUS INGREDIENTS

IMPORTANT! This section covers the material from which these products are manufactured. Dust and gases produced when spraying with normal use of these products are covered in Section 5.

Material or Component	CAS #	Concentration	OSHA PEL	ACGIH TLV	Other Limits *
Chromium oxide	1308-38-9	0.0 -100.0 %	0.5 mg/m ³	0.5 mg/m ³	NE

US EPA SARA TITLE III

Material or Component	CAS Number	Sec. 302 (EHS)	Sec. 304 RQ	Sec. 313 (TRI)
Chromium oxide	1308-38-9	No	Yes 1 LB**	Yes

SECTION 3 – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: [] Gas [] Liquid [X] Solid
Melting Point: 2275 - 2435°C
Boiling Point: 4000°C
Specific gravity (water=1): 5.21 g/cm³
Vapor pressure (mmHg): No data
Vapor Density (Air=1): No data
Evaporation rate (Butylacetate=1): No data
Solubility in water: Insoluble
Solubility Notes: Insoluble in acids and alkalies
Percent volatile (vol.): No data
Corrosion Rate: No data
Appearance and odor: Green powder, no odor
Other: None

SECTION 4 – FIRE AND EXPLOSION HAZARD DATA

<u>Flash point:</u>	N/A	Method Used: Unknown
<u>Auto ignition temp.:</u>	N/A	
<u>Flammable limits:</u>	N/A	
<u>Explosive Limits:</u>	LEL: N/A	UEL: N/A
<u>Extinguishing Media:</u>	Not applicable. Use suitable extinguishing medias for surrounding materials and type of fire.	
<u>Special fire fighting procedures:</u>	Firefighters should wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.	
<u>Unusual fire and explosion hazards:</u>	When heated to decomposition, it may give off toxic fumes of chromium oxide. Chromium oxide is a powerful oxidizer. May have a violent reaction with ClF ₃ .	

SECTION 5 – REACTIVITY DATA

<u>Stability:</u>	Unstable []	Stable [X]
<u>Conditions to avoid - Instability:</u>	None	
<u>Incompatibility – Materials to avoid:</u>	Strong oxidizing agents, acids and bases	
<u>Hazardous decomposition products:</u>	Chromium oxide and oxygen	
<u>Hazardous polymerization:</u>	Will occur []	Will not occur [X]
<u>Conditions to avoid – Hazardous polymerization:</u>	None	
<u>Product corrosive:</u>	Yes []	No [X]

SECTION 6 – HEALTH HAZARD DATA

Health Hazards (Acute and Chronic)

Confirmed carcinogen with experimental tumorigenic data. Mutation data reported. Chromate salts are suspected human carcinogens producing tumors of the lungs, nasal cavity, and paranasal sinus. Chromic acid and its salts have a corrosive action on the skin and mucous membranes. The lesions are confined to the exposed parts, affecting chiefly the skin of the hands and forearms and the mucous membranes of the nasal septum. Hexavalent compounds are more toxic than the trivalent. (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Inhalation: Acute: Toxic by inhalation and is a severe irritant to the mucous membranes.
Chronic: May cause histologic fibrosis of the lungs, nasal and/or lung cancer.

Ingestion: Acute: Toxic by ingestion which may cause gastrointestinal disorders.
Chronic: No chronic health effects recorded.

Skin: Acute: Severe skin irritant.
Chronic: . May cause eczematous dermatitis.

Eye: Acute: Severe eye irritant.
Chronic: No chronic health effects recorded.

Target Organs: May affect the respiratory system.

Carcinogenicity: NTP? [Yes] ARC Monographs? [No] OSHA Regulated? [Yes]

Carcinogenicity / other Information:

NTP 7th Annual Report On Carcinogens. IARC Cancer Review: Group 3 IMEMDT 7,165,87; Animal Inadequate Evidence IMEMDT 23,205,80.

Mutation in Microorganisms-Salmonella typhimurium 1 mmol/L To xicology Letters. (Elsevier Scientific Publishing Co., P.O. Box 211, Amsterdam, Netherlands) V.1- 1977-TOLED5 8,195,81.

DNA Repair-Salmonella typhimurium 50 mmol/L To xicology Letters. (Elsevier Scientific Publishing Co., P.O. Box 211, Amsterdam, Netherlands) V.1- 1977-TOLED5 7,439,81.

DNA Damage-Escherichia coli 5 mmol/L Cancer Research. (Public Ledger Building, Suit 816, 6th & Chestnut Sts., Philadelphia, PA 19106) V.1- 1941-CNREA8 40,2455,80.

Sister Chromatid Exchange-Hamster:lung 34 mg/L Carcinogenesis. (Information Retrieval, 1911 Jefferson Davis Highway, Arlington, VA 22202) V.1- 1980-CRNGDP 4,605,83.

Intraperitoneal-Rat TDLo:90 mg/kg:Equivocal tumorigenic agent Voprosy Onkologii. Problems of Onkology. (v/o Mezhdunarodnaya Kniga, Kuznetskii Most 18, Moscow G-200, USSR.) V.1- 1955-VOONAW 13(11),57,67.

Intraleural-Rat TDLo:45 mg/kg:Equivocal tumorigenic agent Voprosy Onkologii. Problems of Onkology. (v/o Mezhdunarodnaya Kniga, Kuznetskii Most 18, Moscow G-200, USSR.) V.1- 1955-VOONAW 13(11),57,67.

Intratracheal-Rat TDLo:90 mg/kg:Equivocal tumorigenic agent Voprosy Onkologii. Problems of Onkology. (v/o Mezhdunarodnaya Kniga, Kuznetskii Most 18, Moscow G-200, USSR.) V.1- 1955-VOONAW 13(11),57,67

Recommended Exposure Limits

See "Section II"

LD 50 / LC 50

See "Carcinogenicity/Other Information"

Signs and Symptoms of Exposure

Inhalation: May cause a red, dry throat, coughing and shortness of breath.

Ingestion: May cause nausea, diarrhea and vomiting.

Skin: May cause redness, itching, inflammation and burning sensation.

Eye: May cause redness, itching, burning sensation and watering.

Medical Conditions Generally Aggravated by Exposure

Pre-existing respiratory disorders, pulmonary functions and asthma.

Emergency and First Aid Procedures

Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention if symptoms persist.

Ingestion: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

Skin: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if irritation persists.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/DISPOSAL

Steps to be Taken in Case Material is Released or Spilled

Wear appropriate respiratory and protective equipment specified in section 8-control measures. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste Disposal Method

Dispose of in accordance with local, state and federal regulations.

Hazard Label Information

Store in cool, dry place.

Store in tightly sealed container.

Wash thoroughly after handling.

Precautions to be Taken in Handling

None

Precautions to be Taken in Storing

None

Other Precautions

None

SECTION 8 - CONTROL MEASURES

Protective Equipment Summary - Hazard Label Information:

NIOSH approved respirator
Impervious gloves
Safety glasses
Protective clothing to prevent contact with skin

Respiratory Equipment (Specify Type)

NIOSH - approved respirator

Eye Protection

Safety glasses

Protective Gloves

Rubber gloves

Other Protective Clothing

Protective gear suitable to prevent contamination

Ventilation

Local exhaust, minimum face velocity of 60 f.p.m, to maintain concentration at or below PEL, TLV. Good general ventilation is recommended.

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Other: None

Work/Hygienic/Maintenance Practices

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels.

Use good housekeeping and sanitation practices.

Do not use tobacco or food in work area.

Wash thoroughly before eating and smoking.

Do not blow dust off clothing or skin with compressed air.

SECTION 9 – OTHER

Control of Substances Hazardous to Health Regulations EH40 Occupational Exposure Limits Chromium (III) compounds as Chromium

Maximum Exposure Limit: NE

Occupational Exposure Standard: 0.5 mg/m³

HAI Advanced Material Specialists, Inc. requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify its employees, agents, and contractors of the information on this MSDS and any product hazard and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the product hazards and safety information.

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Abbreviations used: N/A=Not Applicable NE: Not Established