Original

MATERIAL SAFETY DATA SHEET

Sodium Bichromate

1. Product and Company Identification

Material name	**Sodium Dichromate, Dihydrate**
Version #	02
Revision date	09-28-2010
CAS #	7789-12-0
Product use	Industrial use.
Synonym(s)	Sodium bichromate * Sodium dichromate, anhydrous (CAS # 10588-01-9)
Manufacturer/Supplier	Elementis Chromium Inc. 5408 Holly Shelter Road Castle Hayne, NC 28429 US General Information: (800) 699-2230
Emergency	Emergency Telephone: (910) 675-7223

2. Hazards Identification

Physical state	Solid.
Appearance	Red-orange crystals.
Emergency overview	DANGER! May be fatal if inhaled. Causes skin and eye burns. Harmful if swallowed or absorbed through skin. Causes severe respiratory tract irritation. Cancer hazard - can cause cancer. May cause allergic respiratory and skin reactions.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This is a hexavalent chromium containing material. In the US, it must be used in accordance with 29 CFR 1910.1026
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Contact may produce eye irritation with associated redness, swelling, tears and pain. Direct contact may also cause severe damage including burns and blindness.
Skin	Harmful if absorbed through skin. Direct contact may cause skin irritation, sensitization or dermatitis. Contact with skin can cause external ulcers. "Chrome Sores". Chrome sores most commonly occur at breaks in the skin, nail roots, creases over knuckles, finger webs, backs of hands, and on forearms. Massive overexposure could lead to toxic quantities being absorbed through the skin causing systemic poisoning and/or kidney or liver damage.
Inhalation	May be fatal if inhaled. Inhalation of dusts and mists can burn the mucous membranes, irritate the respiratory tract and/or cause bronchospasms. Repeated or prolonged inhalation may cause ulceration and perforation of the nasal septum.
Ingestion	Harmful if swallowed. Systemic poisoning may follow ingestion with ensuing kidney and liver damage. Ingestion can cause irritation of the upper gastrointestinal tract.
Target organs	Eyes. Gastrointestinal tract. Kidney. Liver. Respiratory system. Skin.
Chronic effects	Repeated or prolonged inhalation of sodium dichromate may cause nasal perforation, skin ulceration, chronic rhinitis, pharyngitis, kidney and liver damage, inflammation of the larynx, and increased risks of developing nasopharyngeal cancer and lung cancer.
Signs and symptoms	Sodium dichromate is irritating to the skin and mucous membranes. Poisoning by sodium dichromate may cause vomiting, pain in the stomach, and metallic taste. Circulatory collapse may follow with weak and rapid pulse, shallow respiration and clammy skin. Early deaths are generally associated with shock. Late deaths are usually due to renal or hepatic failure.
Potential environmental effects	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Sodium dichromate, dihydrate	7789-12-0	100

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.

Skin contact Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Destroy contaminated clothing and shoes.

Inhalation Move to fresh air. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. DO NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than the hips to help prevent aspiration.

5. Fire Fighting Measures

Flammable properties Containers may explode when heated. Reacts strongly with materials which are readily oxidized. Reaction may be rapid enough to cause ignition.

Extinguishing media

Suitable extinguishing media Use appropriate extinguishing media for any nearby fire. Cool containers exposed to heat with water spray and remove container, if no risk is involved. Containers may explode when heated.

Fire fighting equipment/instructions Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Hazardous combustion products Chromium oxides. Sodium oxides.

6. Accidental Release Measures

Personal precautions Wear appropriate personal protective equipment.

Environmental precautions Do not allow ANY environmental contamination. Environmental manager must be informed of all releases. The U.S. Reportable Quantity (RQ) for sodium dichromate is 10 lbs.

Methods for cleaning up Use a HEPA (high efficiency particle air) vacuum to collect material and place in a sealable container for disposal. Do not use combustible materials such as paper towels to clean up spill. See 29 CFR 1910.1026 for additional details.

7. Handling and Storage

Handling Wear appropriate personal protective equipment. Do not breathe dust. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.

Storage Keep container tightly closed in a cool, well-ventilated place. Keep away from heat, sparks and open flame. Keep away from materials which are readily oxidized. Store in suitable container. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Sodium dichromate, dihydrate (7789-12-0)	Ceiling	0.1 mg/m3
	TWA	0.005 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Sodium dichromate, dihydrate (7789-12-0)	Ceiling	0.1 mg/m3

Exposure guidelines TWA values are based on an 8 Hr average.

Engineering controls This is a hexavalent chromium containing material. For more information see the U.S. Code of Federal Regulations 29 CFR 1910.1026.

Personal protective equipment

Eye / face protection	Wear chemical splash goggles, face shield, or safety glasses with side shields as appropriate for risk of exposure.
Skin protection	Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact chemical protective clothing manufacturer for specific information.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Respirator type: Wear a NIOSH approved respirator, with appropriate cartridge or canister, suitable for airborne concentration levels present.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Red-orange crystals.
Color	Red-orange.
Odor	None.
Odor threshold	Not available.
Physical state	Solid.
Form	Crystals.
pH	3.6 - 4.4
Melting point	674.6 °F (357 °C)
Freezing point	Not available.
Boiling point	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not Applicable.
Flammability limits in air, upper, % by volume	Not applicable.
Flammability limits in air, lower, % by volume	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Specific gravity	2.35
Solubility (water)	73 % @ 20 °C
Partition coefficient (n-octanol/water)	No data available.
Auto-ignition temperature	Not available.
Decomposition temperature	752 °F (400 °C)
Viscosity	Not applicable.
Bulk density	70 - 80 lb/ft³

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Heat. Moisture. Contact with combustibles. Minimize dust generation and accumulation.
Incompatible materials	Acetic anhydride. Hydrazine. Reacts strongly with materials which are readily oxidized. Reaction may be rapid enough to cause ignition.
Hazardous decomposition products	Chromium oxides. Sodium oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
Sodium Dichromate, Dihydrate (7789-12-0)	Acute Dermal LD50 Rabbit: 1000 mg/kg Acute Inhalation LC50 Rat: 124 mg/m3 Acute Oral LD50 Rat: 51 mg/kg

Acute effects May be fatal if inhaled. Causes skin and eye burns. May be harmful if absorbed through skin or swallowed. Causes severe respiratory tract irritation. Persons with skin, liver, kidney and respiratory disorders may be more susceptible to the effects of chromates.

Sensitization May cause allergic respiratory and skin reactions. Persons with known sensitization to chromic acid or chromates or with a history of asthma may be at increased risk from exposure (acute asthmatic attacks).

Chronic effects Long term exposure to this product may cause damage to the lungs, liver and kidneys.

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium dichromate, dihydrate (CAS 7789-12-0) 1 Carcinogenic to humans.

US NTP Report on Carcinogens: Known carcinogen

Sodium dichromate, dihydrate (CAS 7789-12-0) Known carcinogen.

US OSHA Specifically Regulated Substances: Cancer hazard

Sodium dichromate, dihydrate (CAS 7789-12-0) Cancer hazard.

12. Ecological Information

Ecotoxicological data

Product	Test Results
Sodium Dichromate, Dihydrate (7789-12-0)	LC50 Fathead minnow (Pimephales promelas): 37 mg/l 96 Hours

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Persistence and degradability Hexavalent chromium may react with particulate matter or pollutants to form Chromium (III). Generally chromium is removed from the atmosphere through wet and dry deposition.

Bioaccumulation / Accumulation Not expected to bioconcentrate or bioaccumulate.

Partition coefficient (n-octanol/water) No data available.

Mobility in environmental media No data available.

13. Disposal Considerations

Waste codes D007: Waste Chromium

Disposal instructions Dispose of contents/container in accordance with local/regional/national/international regulations. Contract with a licensed chemical disposal agency.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN3288
Proper shipping name	Toxic solid, inorganic, n.o.s. (sodium bichromate)
Hazard class	6.1
Subsidiary hazard class	8
Packing group	III
Labels required	6.1

Additional information:

Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	153

Packaging non bulk	213
Packaging bulk	240
ERG number	151

IATA

Basic shipping requirements:

UN number	3288
Proper shipping name	Toxic solid, inorganic, n.o.s. (sodium bichromate)
Hazard class	6.1
Subsidiary hazard class	8
Packing group	III

Additional information:

ERG code	6L

IMDG

Basic shipping requirements:

UN number	3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (SODIUM BICHROMATE)
Hazard class	6.1
Subsidiary hazard class	6.1,8
Packing group	III
EmS No.	F-A, S-A

TDG

Basic shipping requirements:

Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S. (SODIUM BICHROMATE)
Hazard class	6.1
UN number	UN3288
Packing group	III
Marine pollutant	Marine pollutant only when containing 10% or more substances identified as marine pollutants or severe marine pollutant when containing 1% or more substances identified as severe marine pollutants

Additional information:

Special provisions	16

DOT

IATA

IMDG

TDG

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. This is a hexavalent chromium containing material and must be used in accordance with 29 CFR 1910.1026
All components are on the U.S. EPA TSCA Inventory List.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Sodium dichromate, dihydrate (CAS 7789-12-0) 0.1 % N090

CERCLA (Superfund) reportable quantity (lbs)

Sodium dichromate, dihydrate 10

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard catogories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes
Clean Water Act (CWA)	Hazardous substance Priority pollutant Toxic pollutant
Drug Enforcement Agency (DEA)	Not controlled
WHMIS status	Controlled
WHMIS classification	C - Oxidizing D1A - Immediate/Serious-VERY TOXIC D2A - Other Toxic Effects-VERY TOXIC D2B - Other Toxic Effects-TOXIC

WHMIS labeling

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Hazardous Substances (Director's): Listed substance

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed: February 27, 1987 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed: December 19, 2008 Developmental toxin.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed: December 19, 2008 Female reproductive toxin.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed: December 19, 2008 Male reproductive toxin.

US - Massachusetts RTK - Substance: Listed substance

Sodium dichromate, dihydrate (CAS 7789-12-0) Listed.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

Sodium dichromate, dihydrate (CAS 7789-12-0) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Special hazard

Sodium dichromate, dihydrate (CAS 7789-12-0) Special hazard.

16. Other information

Further information

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 3*
Flammability: 0
Physical hazard: 0

NFPA ratings

Health: 3
Flammability: 0
Instability: 0

Disclaimer

Elementis provides information through its product specification information and material safety data sheets. Because conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the product are therefore assumed by the user and ELEMENTIS EXPRESSLY DISCLAIMS ALL WARRANTIES OF EVERY KIND AND NATURE, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF THE MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. Given the variety of factors that can affect the use and application of a product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. Appropriate warnings and safe handling procedures should be provided to handlers and users.

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09-28-2010