

# School Material Safety Data Sheet

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SODIUM DICHROMATE,  
DIHYDRATE

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## SECTION 1. INTRODUCTORY INFORMATION

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**MATERIAL NAME AND FORMULA:** SODIUM DICHROMATE, Dihydrate;  $\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$

**SYNONYMS:** Sodium Bichromate; Bichromate of Soda; Dichromic Acid, Disodium Salt; Disodium Dichromate

**CAS NUMBER:** 7789-12-0

**TYPICAL COMPOSITION:** Sodium Dichromate, >99.5% (Purity level varies with grade; check manufacturer's specifications for exact composition.)

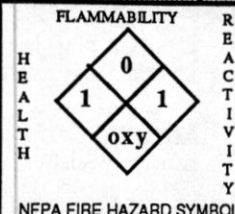
**DOT CLASSIFICATION:** ORM-A, No. NA1479

**EPA CLASSIFICATION:** Hazardous Substance No. D007

**MANUFACTURER'S INFORMATION:** Always request material safety data sheets from your chemical supplier. These should indicate the manufacturer's emergency telephone number. See the Resources/Manufacturers Index for some of the larger manufacturers and available telephone numbers.

**DESCRIPTION:** Sodium Dichromate is available as red orange crystals or powder; odorless. The material is deliquescent; keep its container tightly closed.

**PRELIMINARY INFORMATION:** This substance is an oxidizing agent that can promote or enhance the combustion of flammable materials. It can be corrosive or irritating to skin and other body tissue. May have some mutagenic or carcinogenic properties (see sect. 4). This material has a variety of lab applications and may be present in certain commercial products, including wood preservatives and corrosion inhibitors.



## SECTION 2. USE AND STORAGE INFORMATION

### -- PRELIMINARY PLANNING CONSIDERATIONS --

- **PROVIDE FOR SAFE DISPOSAL OF ALL CHEMICAL WASTE** generated in the lab. Check applicable regulations prior to use.
- Wear safety glasses or goggles and appropriate protective clothing (rubberized apron, etc.) during all experiments.
- Be sure that eyewash station and safety shower are in good working order.
- Provide adequate ventilation to avoid exceeding the TLV (see sect. 4).
- Rubber gloves are recommended to minimize skin contact when working with this material.

### -- USAGE PRECAUTIONS AND PROCEDURES --

- **READ THE LABEL** and follow all precautions.
- Practice good housekeeping to avoid unintentional mixing of incompatible materials. Do not allow residues or dust to build up in the lab or work area.
- For safety, **DO NOT WEAR CONTACT LENSES IN THE LABORATORY**; soft lenses may absorb irritants, and all lenses may concentrate them. Particles can also adhere to contact lens surfaces and cause corneal damage.
- After working with sodium dichromate, always wash hands and face before eating, drinking, or smoking.
- Do not smoke in storage or use area.
- Avoid creating airborne dust conditions.
- Remove contaminated clothing and launder it before wearing it again.
- Keep this material away from notebooks, textbooks, and personal belongings to avoid contamination and the transport of chemical residues out of the lab/work area.
- Do not let this material come into contact with eyes, skin, or clothing. Avoid inhaling the dust or solution mist from this chemical. Do not taste or swallow this substance.
- Clean up spilled material promptly and thoroughly.
- Keep this oxidizing agent away from oxidizable substances (combustibles such as flammable liquids, paper, wood, sulfur, aluminum, plastics, etc.). In the case of finely divided oxidizable materials, combustion can be violent.

### -- ADDITIONAL INFORMATION --

Sodium dichromate does not polymerize. It is stable at room temperature under normal conditions of handling and storage.

- Incompatible materials include acetic anhydride (explosion may occur) and hydrazine (may react explosively).

### -- PREFERRED STORAGE LOCATION AND METHODS --

- Storage area should be cool and well ventilated. Containers should be tightly closed.
- Do not store chemicals alphabetically by name; store them by chemical family instead, to keep compatibles together.
- Protect all chemical containers from physical damage and keep them out of direct sunlight.
- Do not permit smoking in areas where chemicals are stored.
- Purchase only amounts equivalent to one year's needs.
- Store with compatible materials on sturdy noncombustible shelving. Storage of the primary container inside of a heavy-duty plastic bag or other container may be advisable.
- Do not store  $\text{Na}_2\text{Cr}_2\text{O}_7$  on wood floors or near combustible or easily oxidizable materials.

## SECTION 3. SPILLS AND DISPOSAL PROCEDURES

### IF MATERIAL IS SPILLED:

- Ventilate area of spill.
- Clean up spilled material promptly and thoroughly. Do not release to sewer or drain (EPA Hazardous Substance).
- Cleanup personnel should wear personal protective equipment to prevent skin or eye contact and inhalation of dust.
- For liquid (solution) spills, cover material with an inert solid absorbent (vermiculite, dry sand, etc.) and scoop it into an appropriate container (with a secure lid) for disposal in accordance with existing regulations. Dike the spill area with an inert absorbent material, as needed, to contain the spilled material.
- Sweep, vacuum, or scoop up spilled solid, avoiding generation of dust. Place it in a suitable container (with a secure lid) for later disposal.
- Cleanup methods such as vacuuming (with an appropriate filter) or wet mopping will minimize dispersion of dust.

### DISPOSAL OF SMALL QUANTITIES:

NOTE: Emptied containers could contain chemical residues; handle with care.

- Waste may require disposal in an approved chemical waste landfill.
- Do not flush down drains (EPA Hazardous Waste).
- Contact your supplier or a licensed disposal contractor for specific treatment/disposal procedures.

**FOR THE DISPOSAL OF LARGER AMOUNTS** contact a licensed disposal company.

**-- FOLLOW ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS FOR ALL WASTE DISPOSAL --**

## SECTION 4: HEALTH HAZARDS

Current OSHA ACGIH TLV: 8-hr TWA: 0.05 mg/m<sup>3</sup> as Cr

Current OSHA PEL: Ceiling = 0.1 mg/m<sup>3</sup>

NIOSH recommends a TWA of 0.025 mg/m<sup>3</sup> and a ceiling of 0.050 mg/m<sup>3</sup>, as Cr (VI).

Rat, Oral, LD<sub>50</sub>: 50 mg/kg

Guinea Pig, Skin, LD<sub>50</sub>: 335 mg/kg

- Inhalation of dichromate dust and mist can cause irritation of the nose, throat, bronchial tubes, and lungs. Prolonged or repeated exposure may result in ulceration and perforation of the nasal septum. Kidney and liver damage have also been reported.
- Skin contact is associated with both contact dermatitis and allergic skin rashes. Ulceration of the skin ("chrome ulcers") may also occur, especially if the skin is broken.
- Increased incidences of respiratory cancer have been reported in the chromate-producing industry. NIOSH has identified sodium dichromate as a "noncarcinogenic chromium (VI)" (1975. *Criteria for recommended standard - occupational exposure to chromium [VI]*). The IARC has classified "chromium and certain chromium compounds" as being carcinogenic to humans. The specific chromium compounds responsible for the carcinogenic effects are believed to be the less soluble compounds.

## SECTION 5: FIRST AID PROCEDURES

**Eye contact:**

- Flush eyes promptly, including under the eyelids, with plenty of running water. Continue for at least 15 minutes.
- Get immediate medical attention.\*

**Skin contact:**

- Remove contaminated clothing promptly.
- Wash exposed areas of skin with soap and water.
- Get medical attention if irritation persists after washing thoroughly.\*

**Inhalation:**

- Remove victim to fresh air; restore/support his breathing as necessary.
- Contact medical personnel.\*

**Ingestion:**

- Rinse victim's mouth thoroughly with water.
- Give several glasses of water to drink. Induce vomiting, but ONLY if victim is conscious and alert.
- Never give anything by mouth to someone who is unconscious or convulsing.
- Get prompt medical attention.\*

\* Get medical help (in school, paramedic, or community) for further treatment, observation, and support after first aid.

## SECTION 6: FIRE PROCEDURES AND DATA

- Sodium dichromate is an oxidizing agent and can promote combustion, especially when heated. If possible to do so safely, remove containers of this material from the fire area.
- Extinguishing media: Use media appropriate to surrounding fire conditions.
- For major fires, or if large quantities of this material are involved, fire fighters should wear appropriate protective clothing and use respiratory protection. Self-contained breathing apparatus is recommended.
- A water spray may be used to cool fire-exposed containers and disperse vapors. Prevent water runoff to sewers and waterways.

HAZARDOUS PRODUCTS OF DECOMPOSITION MAY INCLUDE: Oxygen and Chromium Oxide

FLASH POINT: Not Applicable

AUTOIGNITION TEMPERATURE: Not Applicable

FLAMMABILITY LIMITS IN AIR (Vol %): Not Applicable

## SECTION 7: PHYSICAL DATA

BOILING POINT (@ 1 atm.): 760°F (400°C) (Decomposes)

SOLUBILITY IN WATER (Dihydrate) (g/100cc): 238 at 0°C (508 at 80°C) (Insoluble in Alcohol)

SOLUBILITY IN WATER (Anhydrous) (g/100cc): 180 at 20°C (433 at 96°C)

pH OF AQUEOUS SOLUTION (1%): 4.0

SPECIFIC GRAVITY (at 13°C): 2.52

HEAT OF SOLUTION: -28.2 cal/g

MELTING POINT: 675°F (357°C) (Loses Water of Hydration at 212°F [100°C])

FORMULA WEIGHT: 298

REFERENCES: Genium Industrial MSDS 153 (10/85) and references 2, 4, 5, 7, 9, 12, 19, 25, 27, 57, 58, 61, 64, 84, 506, 509-11, 518.  
(see glossary for titles)

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