



MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Identification:

- **Key:** 19370
- **Name:** Potassium dichromate

Catalog Numbers:

AC196590500, S77435, S77435-1, P186-3, P186-500, P188-100, P188-3, P188-30, P188-500, S77435-2

Synonyms:

- Dichromic acid, dipotassium salt; Bichromate of potash; Dipotassium dichromate; Potassium bichromate

Company Identification:

Fisher Scientific
1 Reagent Lane
Fairlawn, NJ 07410

For information, call:

- 201-796-7100

Emergency Number:

- 201-796-7100

For CHEMTREC assistance, call:

- 800-424-9300

For International CHEMTREC assistance, call:

- 703-527-3887

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS #	Chemical Name	%	EINECS #
7778-50-9	Chromic acid, dipotassium salt	100	231-906-6

Hazard Symbols: T+ N

Risk Phrases: 21 25 26 37/38 41 43 46 49 50/53

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: orange crystalline powder. Danger! Strong oxidizer. Contact with other material may cause a fire. May be fatal if swallowed. May be fatal if absorbed through the skin. Corrosive. Dangerous for the environment. May cause fetal effects based upon animal studies. Causes eye and skin burns. May cause liver and kidney damage. Cancer hazard. May cause blood abnormalities. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. May cause sensitization by inhalation and by skin contact.

Target Organs: Blood, kidneys, liver, lungs, teeth.

POTENTIAL HEALTH EFFECTS

Eye: Causes eye burns. May cause chemical conjunctivitis and corneal damage.

Skin: May be fatal if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Chrome ulcers, penetrating lesions of the skin, occur chiefly on the hand and forearm where there has been a break in the epidermis.

Ingestion: May be fatal if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, and death. Methemoglobinemia is characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown colored blood.

Inhalation: May cause asthmatic attacks due to allergic sensitization of the respiratory tract. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema.

Chronic: Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause respiratory tract cancer. May cause liver and kidney damage. Chronic inhalation may cause nasal septum ulceration and perforation. May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Repeated or prolonged exposure may cause erosion and discoloration of the teeth.

SECTION 4 - FIRST AID MEASURES

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Consider the use of calcium gluconate for muscle spasms and gastric lavage followed by saline catharsis if soluble barium salts are ingested. For methemoglobinemia, administer oxygen alone or with Methylene Blue depending on the methemoglobin concentration in the blood. Effects may be delayed.

SECTION 5 - FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Containers may explode if exposed to fire.

Extinguishing Media: Use water only! Do NOT use dry chemical. Do NOT use halocarbons and sodium bicarbonate. Do NOT use carbon dioxide or dry chemical. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 1; Special Hazard: OX

SECTION 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

SECTION 7 - HANDLING AND STORAGE

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with heat, sparks and flame. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Use only in a chemical fume hood. Discard contaminated shoes.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from reducing agents.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

EXPOSURE LIMITS

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chromic acid, dipotassium salt	0.05 mg/m ³ TWA(as Cr) (listed under ** no name**).	0.5 mg/m ³ TWA(listed under **no name **).250mg/m ³ IDLH (listed under **no name **).	1 mg/m ³ TWA(listed under **no name **).

OSHA Vacated PELs:

Chromic acid, dipotassium salt: 1 mg/m³ TWA (listed under ** no name **)

PERSONAL PROTECTIVE EQUIPMENT

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Crystalline powder

Color: orange

Odor: odorless

pH: 4.0 (1.0% solution)

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 500 deg C (dec)

Freezing/Melting Point: 398 deg C

Decomposition Temperature: 500 deg C

Solubility in water: Soluble.

Specific Gravity/Density: 2.676

Molecular Formula: K₂Cr₂O₇

Molecular Weight: 294.1844

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation, excess heat, combustible materials.

Incompatibilities with Other Materials: Reducing agents, acids, organic matter, hydrazine, sulfuric acid + acetone, hydroxylamine, ethylene glycol, boron, silicon, iron, tungsten, sulfur, aluminum, plastics.

Hazardous Decomposition Products: Irritating and toxic fumes and gases, oxides of potassium, chromium dioxide.

Hazardous Polymerization: Has not been reported.

SECTION 11 - TOXICOLOGICAL INFORMATION**RTECS#:**

- CAS# 7778-50-9: HX7680000

LD50/LC50:

- CAS# 7778-50-9: Draize test, rabbit, eye: 140 mg Severe; Oral, mouse: LD50 = 190 mg/kg; Oral, rat: LD50 = 25 mg/kg; Skin, rabbit: LD50 = 14 mg/kg. Not available.

Carcinogenicity:

Chromic acid, dipotassium salt -

- ACGIH: A1 - Confirmed Human Carcinogen (listed as ** undefined **).
- California: carcinogen; initial date 2/27/87 (listed as ** undefined **).
- NTP: Known carcinogen (listed as ** undefined **).
- OSHA: Possible select carcinogen (listed as ** undefined **).
- IARC: Group 3 carcinogen (listed as ** undefined **).

Epidemiology:

No information available.

Teratogenicity:

Oral, rat: TDLo = 1 gm/kg (female 0-19 day(s) after conception) Specific Developmental Abnormalities - musculoskeletal system.; Oral, mouse: TDLo = 1 gm/kg (female 20 day(s) pre-mating) Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord) and Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive Effects:

Oral, rat: TDLo = 525 mg/kg (female 21 day(s) after conception) Fertility - pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea) and Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

Neurotoxicity:

No information available.

Mutagenicity:

Micronucleus Test: Human, Lymphocyte = 300 ug/L.; Morphological Transformation: Human, Fibroblast = 200 nmol/L.; DNA Damage: Human, Fibroblast = 500 nmol/L.; Unscheduled DNA Synthesis: Human, Fibroblast = 50 umol/L.; DNA Inhibition: Human, Fibroblast = 100 umol/L.; DNA Inhibition: Human, HeLa cell = 13 umol/L.; Mutation Test Systems - not otherwise specified: Human, Fibroblast = 100 umol/L.

Other Studies:

No information available.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Striped bass: LC50 = 75 mg/L; 96 Hr; Static bioassay

Fathead Minnow: LC50 = 17,300 ug/L; Unspecified; as chromium

(Unspecified)Fish: Bluegill/Sunfish: LC50 = 118,000-133,000 ug/L;

Unspecified; as chromium (Static unmeasured)Water flea Daphnia: EC50

- =1,570 ug/L; 24 Hr; as chromium (Unspecified)Chromium probably occurs as the insoluble Cr(III) oxide (Cr2O3.nH2O) in soil, as the organic matter in soil is expected to reduce any soluble chromate to insoluble chromic oxide (Cr2O3). Chromium in soil can be transported to the atmosphere by way of aerosol formation. Chromium is also transported from soil through runoff and leaching of water.

Other

- Dangerous to aquatic life in high concentrations.

SECTION 13 - DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

SECTION 14 - TRANSPORT INFORMATION

US DOT

- Shipping Name: TOXIC SOLIDS, OXIDIZING, N.O.S.
- Hazard Class: 6.1
- UN Number: UN3086
- Packing Group: I

Canadian TDG

- Shipping Name: TOXIC SOLID INORGANIC NOS (POTASSIUM DICHROMATE)
- Hazard Class: 6.1
- UN Number: UN3288
- Packing Group: II

SECTION 15 - REGULATORY INFORMATION

US FEDERAL

TSCA

- CAS# 7778-50-9 is listed on the TSCA inventory.

Health & Safety Reporting List

- None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

- None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

- CAS# 7778-50-9: 6/12b

TSCA Significant New Use Rule

- None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs

- CAS# 7778-50-9: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

- None of the chemicals in this product have a TPQ.

SARA Codes

- CAS # 7778-50-9: chronic.

Section 313

- This material contains Chromic acid, dipotassium salt (listed as ** undefined **), 100%, (CAS# 7778 -50-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Clean Air Act:

- This material does not contain any hazardous air pollutants.
- This material does not contain any Class 1 Ozone depleters.
- This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

- CAS# 7778-50-9 is listed as a Hazardous Substance under the CWA.
- CAS# 7778-50-9 is listed as a Priority Pollutant under the Clean Water Act.
- CAS# 7778-50-9 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

- None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Chromic acid, dipotassium salt can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as ** no name **), Minnesota, (listed as ** no name **), Massachusetts.

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

- **WARNING:** This product contains Chromic acid, dipotassium salt, listed as ` ** undefined **`, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

- Hazard Symbols: T+ N
- Risk Phrases:
 - R 46 May cause heritable genetic damage.
 - R 49 May cause cancer by inhalation.
 - R 21 Harmful in contact with skin.
 - R 25 Toxic if swallowed.
 - R 26 Very toxic by inhalation.
 - R 37/38 Irritating to respiratory system and skin.
 - R 41 Risk of serious damage to eyes.
 - R 43 May cause sensitization by skin contact.

- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

- Safety Phrases:

- S 53 Avoid exposure - obtain special instructions before use.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 60 This material and its container must be disposed of as hazardous waste.
- S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

- CAS# 7778-50-9: 3

United Kingdom Occupational Exposure Limits

- CAS# 7778-50-9: OES-United Kingdom, TWA (listed as ** undefined **): 0.5 mg/m3 TWA

United Kingdom Maximum Exposure Limits

- CAS# 7778-50-9: MEL-United Kingdom, TWA (listed as ** undefined **): 0.05 mg/m3 TWA (as Cr)

Canada

- CAS# 7778-50-9 is listed on Canada's DSL List.
- This product has a WHMIS classification of C, D2A, D1A, E.
- CAS# 7778-50-9 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

- CAS# 7778-50-9 (listed as ** undefined **): OEL-ARAB Republic of Egypt :TWA 0.05 mg/m3
- OEL-AUSTRALIA:TWA 0.05 mg/m3
- OEL-BELGIUM:TWA 0.5 mg/m3
- OEL-DENMARK:TWA 0.5 mg/m3
- OEL-FINLAND:TWA 0.01 mg/m3
- OEL-FRANCE:TWA 0.5 mg/m3
- OEL-JAPAN:TWA 0.5 mg/m3
- OEL-THE NETHERLANDS:TWA 0.5 mg/m3
- OEL-THE PHILIPPINES:TWA 1 mg/m3
- OEL-SWEDEN:TWA 0.5 mg/m3
- OEL-UNITED KINGDOM:TWA 0.5 mg/m3 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

SECTION 16 - ADDITIONAL INFORMATION
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MSDS Creation Date: 7/19/1999, **Revision #4 Date:** 10/07/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.