

Material Safety Data Sheet

Potassium dichromate

ACC# 19370

Section 1 - Chemical Product and Company Identification

MSDS Name: Potassium dichromate

Catalog Numbers: AC196590000, AC196590020, AC196590500, AC196595000, AC197760000, AC197760010, AC197765000, AC325590000, AC424110000, AC424110050, AC424110500, AC424115000, AC9521839, AC9654808, S77435, S77435-1, S77435-2, S93333, P186-3, P186-500, P188-100, P188-3, P188-30, P188-500

Synonyms: Dichromic acid, dipotassium salt; Dipotassium dichromate; Potassium bichromate.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, 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	Percent	EINECS/ELINCS
7778-50-9	Chromic acid, dipotassium salt	100	231-906-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: orange crystalline powder.

Danger! Danger of serious damage to health by prolonged exposure through inhalation. May be fatal if inhaled or swallowed. Strong oxidizer. Contact with other material may cause a fire. Causes burns by all exposure routes. May cause allergic respiratory and skin reaction. May impair fertility. May cause harm to the unborn child. Harmful if absorbed through the skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cancer hazard. May cause heritable genetic damage. May cause sensitization by inhalation and by skin contact.

Target Organs: Blood, kidneys, liver, lungs, respiratory system, gastrointestinal system,

teeth, eyes, skin.

Potential Health Effects

Eye: Causes eye burns.

Skin: Harmful if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May be fatal if swallowed. Causes gastrointestinal tract burns. May cause kidney damage. May cause perforation of the digestive tract.

Inhalation: May be fatal if inhaled. May cause allergic respiratory reaction. May cause liver and kidney damage. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities.

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. May cause cancer in humans. Laboratory experiments have resulted in mutagenic effects. Possible risk of harm to the unborn child. Repeated or prolonged exposure may cause erosion and discoloration of the teeth. May impair fertility.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

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

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Call a poison control center.

Inhalation: If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

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 other material may cause 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. 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.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

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. Carefully scoop up and place into appropriate disposal container. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Keep away from 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. 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: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chromic acid, dipotassium salt	0.05 mg/m ³ TWA (as Cr) (listed under Chromium (VI) compounds- water soluble).	0.001 mg/m ³ TWA (as Cr) (listed under Chromates).15 mg/m ³ IDLH (as Cr(VI)) (listed under Chromates).	5 æg/m ³ TWA (listed under Chromium (VI) compounds).0.1 mg/m ³ Ceiling (as CrO ₃ , applies to any operations or sectors for which the H exavalent Chromium

			standard [29 CFR 1910.1026] is stayed or is otherwise not in effect) (listed under Chromates).2.5 æg/m3 Action Level (as Cr.); 5 æg/m3 TWA (as Cr. Cancer hazard - See 29 CFR 1910.1026) (listed under Chromium (VI) compounds).
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OSHA Vacated PELs: Chromic acid, dipotassium salt: No OSHA Vacated PELs are listed for this chemical.

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 respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystalline powder

Appearance: orange

Odor: odorless

pH: 4 (5% aq. solution)

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 500 deg C

Freezing/Melting Point:398 deg C

Decomposition Temperature:500 deg C

Solubility: 125 g/L (20°C)

Specific Gravity/Density:2.676

Molecular Formula:K₂Cr₂O₇

Molecular Weight:294.18

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, dust generation, excess heat, combustible materials, organic materials.

Incompatibilities with Other Materials: Reducing agents, acids, strong bases, acetic anhydride, hydrazine, hydroxylamine, nitric acid, oils, hydrochloric acid.

Hazardous Decomposition Products: Oxygen, oxides of potassium, chromium dioxide, toxic chromium oxide fumes.

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;

Inhalation LC50 (rat): 0.094 mg/l/4H (Merck).

Carcinogenicity:

CAS# 7778-50-9:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Chromium (VI) compounds-water soluble').
- **California:** carcinogen, initial date 2/27/87 (listed as Chromium (VI) compounds).
- **NTP:** Known carcinogen (listed as Chromium (VI) compounds).
- **IARC:** Group 1 carcinogen

Epidemiology: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals.

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).

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.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Striped bass: LC50 = 75 mg/L; 96 Hr; Static bioassay
Fish: 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 ($\text{Cr}_2\text{O}_3 \cdot n\text{H}_2\text{O}$) in soil, as the organic matter in soil is expected to reduce any soluble chromate to insoluble chromic oxide (Cr_2O_3). 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.

Environmental: Most of the chromium in surface waters may be present in particulate form as sediment. Some of the particulate chromium would remain as suspended matter and ultimately be deposited in sediments. Chromium is present usually as Cr(III) in the soil and is characterized by its lack of mobility, except in cases where Cr(VI) is involved. Chromium(VI) of natural origin is rarely found.

Physical: No information available.

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

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: Section 6, 0.1 % de minimus concentration [see 40 CFR 749.68]

TSCA Significant New Use Rule

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

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: delayed.

Section 313

This material contains Chromic acid, dipotassium salt (listed as Chromium (VI) compounds), 100%, (CAS# 7778-50-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 7778-50-9 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

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

STATE

CAS# 7778-50-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Chromium (VI) compounds- water soluble), Minnesota, (listed as Chromium (VI) compounds), Massachusetts.

California Prop 65

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 'Chromium (VI) compounds', 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+ O N

Risk Phrases:

- R 21 Harmful in contact with skin.
- R 25 Toxic if swallowed.
- R 26 Very toxic by inhalation.
- R 34 Causes burns.
- R 42/43 May cause sensitization by inhalation and skin contact.
- R 45 May cause cancer.
- R 46 May cause heritable genetic damage.
- R 8 Contact with combustible material may cause fire.
- R 48/23 Toxic : danger of serious damage to health by prolonged exposure through inhalation.
- R 60 May impair fertility.
- R 61 May cause harm to the unborn child.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 53 Avoid exposure - obtain special instructions before use.
- 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

Canada - DSL/NDSL

CAS# 7778-50-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of C, D1A, D2A, E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7778-50-9 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/19/1999

Revision #6 Date: 6/18/2007

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 event shall Fisher 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 Fisher has been advised of the possibility of such damages.