Potassium dichromate

\[ \text{Chemical Formula: } \text{K}_2\text{Cr}_2\text{O}_7 \]

## Section 1. Chemical Product and Company Identification

**Common Name/Trade Name**

Potassium dichromate

**Manufacturer**

SPECTRUM CHEMICAL MFG. CORP.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Commercial Name(s)**

Not available.

**Synonym**

Bichromate of potash; Dipotassium Dichromate; Potassium bichromate; Potassium dichromate (VI)

**Chemical Name**

Not available.

**Chemical Family**

Not available.

**Chemical Formula**

\[ \text{K}_2\text{Cr}_2\text{O}_7 \]

**Supplier**

SPECTRUM CHEMICAL MFG. CORP.
14422 S. SAN PEDRO STREET
GARDENA, CA 90248

**Catalog Number(s).**

P1281, P1282, P1283

**CAS#**

7778-50-9

**RTECS**

HX7680000

**TSCA**

TSCA 8(b) inventory:
Potassium dichromate

**CI#**

Not available.

## Section 2. Composition and Information on Ingredients

### Exposure Limits

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
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</thead>
<tbody>
<tr>
<td>1) Potassium dichromate</td>
<td>7778-50-9</td>
<td>0.05</td>
<td></td>
<td></td>
<td>100</td>
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</tbody>
</table>

### Toxicological Data on Ingredients

**Potassium dichromate**

LD50: Not available.

LC50: Not available.

## Section 3. Hazards Identification

### Potential Acute Health Effects

Extremely hazardous in case of skin contact (permeator). Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive, sensitizer), of eye contact (corrosive), of inhalation (lung irritant). Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

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### Potential Chronic Health Effects

Slightly hazardous in case of skin contact (sensitizer).

**CARCINOGENIC EFFECTS:** Classified A1 (Confirmed for human.) by ACGIH.

**MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

**TERATOGENIC EFFECTS:** Not available.

**DEVELOPMENTAL TOXICITY:** Not available.

The substance may be toxic to blood, kidneys, lungs, liver, upper respiratory tract, skin, eyes.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4. First Aid Measures

#### Eye Contact

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

#### Skin Contact

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

#### Serious Skin Contact

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

#### Inhalation

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

#### Serious Inhalation

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

#### Ingestion

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

#### Serious Ingestion

Not available.

### Section 5. Fire and Explosion Data

#### Flammability of the Product

Non-flammable.

#### Auto-Ignition Temperature

Not applicable.

#### Flash Points

Not applicable.

#### Flammable Limits

Not applicable.

#### Products of Combustion

Not available.

#### Fire Hazards in Presence of Various Substances

Combustible materials, organic materials

#### Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

#### Fire Fighting Media and Instructions

Not applicable.

#### Special Remarks on Fire Hazards

Dangerous in contact with organic materials. Contact with combustible or organic materials may cause fire.

When heated to decomposition it emits toxic fumes of potassium oxide

#### Special Remarks on Explosion Hazards

Reacts explosively with hydrazine, and anydrous hydroxylamine.

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Section 6. Accidental Release Measures

Small Spill
Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill
Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7. Handling and Storage

Precautions
Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials.

Storage
Oxidizing materials should be stored in a separate safety storage cabinet or room.

Section 8. Exposure Controls/Personal Protection

Engineering Controls
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits
CEIL: 0.1 (mg(CrO3)/m³) from OSHA (PEL) [United States]
TWA: 0.05 (mg(Cr)/m³) from ACGIH (TLV) [United States]
Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance
Solid.

Molecular Weight
294.2 g/mole

pH (1% soln/water)
4 [Acidic.]

Boiling Point
Decomposition temperature: 500°C (932°F)

Melting Point
398°C (748.4°F)

Critical Temperature
Not available.

Specific Gravity
2.676 @ 25 deg. C (Water = 1)
Bulk Density: 1.6 g/m³ @ 20 deg. C

Vapor Pressure
Not applicable.

Vapor Density
Not available.

Volatile
Not available.

Odor Threshold
Not available.

Water/Oil Dist. Coeff.
Not available.

Ionicity (in Water)
Not available.

Dispersion Properties
See solubility in water.

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Potassium dichromate

Solubility
Easily soluble in hot water.
Soluble in cold water.
Solubility in water: 4.9 g/100 ml water @ 0 deg. C
Solubility in water: 10.5% (w/w) @ 20 deg. C
Solubility in water: 102 g/100 ml water @ 100 deg. C
Insoluble in alcohol.

Section 10. Stability and Reactivity Data

Stability
The product is stable.

Instability Temperature
Not available.

Conditions of Instability
Incompatible materials

Incompatibility with various substances
Reactive with reducing agents, combustible materials, organic materials, metals, acids, alkalis.

Corrosivity
Non-corrosive in presence of glass.

Special Remarks on Reactivity
Reacts violently or ignites with ethylene glycol above 100 deg. C
Other Incompatibles: combustible, organic, or other readily oxidizable materials such as paper, wood, sulfur, aluminum, iron, tungsten, sulfuric acid + acetone, born, glycol, sulfur, plastics

Section 11. Toxicological Information

Routes of Entry
Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals
Acute oral toxicity (LD50): 25 mg/kg [Rat].
Acute dermal toxicity (LD50): 14 mg/kg [Rabbit].

Chronic Effects on Humans
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH.
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.
May cause damage to the following organs: blood, kidneys, lungs, liver, upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans
Extremely hazardous in case of skin contact (permeator).
Very hazardous in case of skin contact (irritant), of ingestion,.
Hazardous in case of skin contact (corrosive, sensitizer), of eye contact (corrosive), of inhalation (lung irritant).

Special Remarks on Toxicity to Animals
Lowest Published Lethal Dose:
LDL [Man] - Route: Oral; Dose: 143 mg/kg
LDL [Child] - Route: Oral; Dose 26 mg/kg

Special Remarks on Chronic Effects on Humans
Passes through the placental barrier in animal.
May cause adverse reproductive effects and birth defects (teratogenic).
May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans
Acute Potential Health Effects:
Skin: It causes skin irritation and may cause skin burns. It can be absorbed by the skin and cause systemic effects. Deep ulceration of the skin of the hands, resulting from occupational exposure can penetrate as far as the bone in severe cases.
Eyes: Causes eye irritation and may cause eye burns. It may cause severe damage with possible loss of vision, transient corneal bulging, residual irregular astigmatism, and anethesia of the area after bulging resolves.
Inhalation: Causes respiratory tract irritation. Inhalation of dust or mist can also cause irritation of the nose and eyes. Symptoms may include sneezing, rhinorrhea, throat erythema, nasal septum lesions, or perforation with with bleeding, discharge, or crusting
Ingestion: Harmful if swallowed. When ingested in small amounts, it can cause burns of the esophagus, with possible stricture formation and perforation of the stomach. Symptoms may include abdominal and esophageal pain, nausea, vomiting, hypermotility, diarrhea, gastrointestinal tract irritation and bleeding, respiratory distress, cyanosis, coma, and death. It may also affect the cardiovascular system (cardiovascular shock, peripheral vascular collapse, urinary system (kidney damage - nephritis with glycosuria, acute tubular necrosis, renal failure), liver (elevated liver enzyme levels, hepatitis, hepatic failure), behavior/central nervous system/nervous system (somnolence, ataxia, vertigo, muscle cramps). It may also affect the blood and cause anemia, methemoglobinemia (characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis with bluish skin, rapid heart
rate and chocolate-brown colored blood), thrombocytopenia.

Chronic Potential Health Effects:
Skin: Repeated or prolonged skin contact can produce eczematous allergic contact dermatitis with deep ulcers that do not heal.
Inhalation: Repeated or prolonged inhalation can cause chronic rhinitis, coughing, dyspnea, wheezing, substernal pain, asthma, perforation of the nasal septum, and mucous membrane injury.
Ingestion: Hexavalent chromium has been reported to cause liver and kidney damage with chronic exposure. Chronic ingestion may also affect the blood and cause anemia, methemoglobinemia (characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis with bluish skin, rapid heart rate and chocolate-brown colored blood), thrombocytopenia, and may affect metabolism (weight loss).
Prolonged exposure may also cause erosion and discoloration of teeth.

**Section 12. Ecological Information**

**Ecotoxicity**

Ecotoxicity in water (LC50): 75 mg/l 96 hours [Fish (Striped bass)]. 1.5 mg/l 24 hours [Daphnia (daphnia)]. 17.3 mg/l 11 hours [Fish (Fathead minnow)].

**BOD5 and COD**

Not available.

**Products of Biodegradation**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation**

The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation**

Dangerous to aquatic life in high concentrations. Chromium probably occurs as the insoluble (Cr(III)) oxide (Cr2O3.nH2O) in the soil, as the organic matter in the soil is expected to reduce any soluble chromate to insoluble chromic oxide (Cr2O3). Chromium in the soil can be transported to the atmosphere by way of aerosol formation. Chromium is also transported from the soil through runoff and leaching of water. 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 the sediments. Chromium 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.

**Section 13. Disposal Considerations**

**Waste Disposal**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14. Transport Information**

**DOT Classification**

CLASS 5.1: Oxidizing material.
CLASS 6.1: Poisonous material.

**Identification**

Toxic Solids, Oxidizing, n.o.s (Potassium Dichromate) UNNA: 3086 PG: I

**Special Provisions for Transport**

Not available.

**DOT (Pictograms)**

Continued on Next Page
### Section 15. Other Regulatory Information and Pictograms

**Federal and State Regulations**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Potassium dichromate

Pennsylvania RTK: Potassium dichromate

Massachusetts RTK: Potassium dichromate

TSCA 8(b) inventory: Potassium dichromate

SARA 313 toxic chemical notification and release reporting: Potassium dichromate


**California Proposition 65 Warnings**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Potassium dichromate

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

**Other Regulations**


**Other Classifications**

<table>
<thead>
<tr>
<th>WHMIS (Canada)</th>
<th>DSCL (EEC)</th>
<th>National Fire Protection Association (U.S.A.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS C: Oxidizing material.</td>
<td>R21- Harmful in contact with skin. R25- Toxic if swallowed. R26- Very toxic by inhalation. R37/38- Irritating to respiratory system and skin. R41- Risk of serious damage to eyes. R43- May cause sensitization by skin contact. R46- May cause heritable genetic damage. R49- May cause cancer by inhalation. R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.</td>
<td>S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S53- Avoid exposure - obtain special instructions before use. S60- This material and its container must be disposed of as hazardous waste. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>Health Hazard</td>
<td>Health</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>Specific hazard</td>
</tr>
</tbody>
</table>

**TDG (Canada) (Pictograms)**

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Potassium dichromate

ADR (Europe)
(Pictograms)

Protective Equipment

Gloves.

Lab coat.

Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

Section 16. Other Information

MSDS Code P4280

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 5/30/2003.

Verified by Sonia Owen.


CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.