1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Potassium dichromate
Product Number: P5271
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Oxidizer, Carcinogen, Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitiser, Corrosive, Teratogen, Mutagen

Target Organs
Lungs, Kidney, Blood

GHS Classification
Oxidizing solids (Category 2)
Acute toxicity, Oral (Category 2)
Acute toxicity, Inhalation (Category 1)
Acute toxicity, Dermal (Category 1)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Respiratory sensitization (Category 1)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1B)
Reproductive toxicity (Category 1B)
Specific target organ toxicity - repeated exposure, Inhalation (Category 1)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H272 May intensify fire; oxidiser.
H300 + H310 Fatal if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H334     May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340     May cause genetic defects.
H350     May cause cancer.
H360     May damage fertility or the unborn child.
H372     Causes damage to organs through prolonged or repeated exposure if inhaled.
H400     Very toxic to aquatic life.

Precautionary statement(s)
P201     Obtain special instructions before use.
P220     Keep/Store away from clothing/ combustible materials.
P260     Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264     Wash hands thoroughly after handling.
P273     Avoid release to the environment.
P280     Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284     Wear respiratory protection.
P302 + P350  IF ON SKIN: Gently wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310     Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification
  Health hazard:  4
  Chronic Health Hazard: *
  Flammability:  0
  Physical hazards:  3

NFPA Rating
  Health hazard:  4
  Fire:  0
  Reactivity Hazard:  3
  Special hazard.: OX

Potential Health Effects
  Inhalation     May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
  Skin           May be fatal if absorbed through skin. Causes skin burns.
  Eyes           Caused eye burns.
  Ingestion      May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms    : Potassium bichromate

Formula     : \( \text{Cr}_2\text{K}_2\text{O}_7 \)
Molecular Weight : 294.18 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potassium dichromate</strong></td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>7778-50-9</td>
</tr>
<tr>
<td>EC-No.</td>
<td>231-906-6</td>
</tr>
<tr>
<td>Index-No.</td>
<td>024-002-00-6</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

- **Conditions of flammability**
  Not flammable or combustible.

- **Suitable extinguishing media**
  Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

- **Special protective equipment for firefighters**
  Wear self contained breathing apparatus for fire fighting if necessary.

- **Hazardous combustion products**
  Hazardous decomposition products formed under fire conditions. - Potassium oxides, Chromium oxides

- **Further information**
  Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

- **Personal precautions**
  Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

- **Environmental precautions**
  Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

- **Methods and materials for containment and cleaning up**
  Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

- **Precautions for safe handling**
  Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

- **Conditions for safe storage**
  Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td>7778-50-9</td>
<td>CEIL  0.1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA  0.0050 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEIL  0.0010 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA  0.05 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: Confirmed human carcinogen
Substance listed; for more information see OSHA document 1910.1026

See 1910.1026. See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in 1910.1026 is stayed or are otherwise not in effect.

Personal protective equipment

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>crystalline</td>
</tr>
<tr>
<td>Colour</td>
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</tr>
</tbody>
</table>

**Safety data**

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>3.5 - 5.0 at 29.4 g/l at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 398 °C (748 °F) - lit.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>no data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
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<tr>
<td>Ignition temperature</td>
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<tr>
<td>Autoignition temperature</td>
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<tr>
<td>Lower explosion limit</td>
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</tr>
<tr>
<td>Upper explosion limit</td>
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</tr>
<tr>
<td>Vapour pressure</td>
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<tr>
<td>Density</td>
<td>2.680 g/cm³</td>
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<tr>
<td>Water solubility</td>
<td>ca.29.4 g/l at 20 °C (68 °F)</td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: 5</td>
</tr>
<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
no data available

**Materials to avoid**
Organic materials, Do not store near acids., Powdered metals, Hydrazine

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Potassium oxides, Chromium oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - 25 mg/kg

**Inhalation LC50**
LC50 Inhalation - rat - female - 4 h - 29 mg/m3

**Dermal LD50**
LD50 Dermal - rabbit - 14 mg/kg
Remarks: Lungs, Thorax, or Respiration:Acute pulmonary edema. Diarrhoea Prolonged skin contact may cause skin irritation and/or dermatitis.

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
no data available

**Respiratory or skin sensitization**
May cause allergic respiratory reaction.

**Germ cell mutagenicity**
May alter genetic material.
In vivo tests showed mutagenic effects

**Carcinogenicity**
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

**Possible human carcinogen**

IARC: 1 - Group 1: Carcinogenic to humans (Potassium dichromate)
NTP: Known to be human carcinogen (Potassium dichromate)
OSHA: 1910.1026 (Potassium dichromate)

**Reproductive toxicity**
no data available

**Teratogenicity**

Presumed human reproductive toxicant

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
Inhalation - Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
no data available

**Potential health effects**

**Inhalation**
May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Ingestion**
May be fatal if swallowed.

**Skin**
May be fatal if absorbed through skin. Causes skin burns.

**Eyes**
Causes eye burns.

**Signs and Symptoms of Exposure**
Ulceration, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

**Synergistic effects**
no data available

**Additional Information**
RTECS: HX7680000

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12. ECOLOGICAL INFORMATION

**Toxicity**

Toxicity to fish
LC50 - Lepomis macrochirus - 0.131 mg/l - 96.0 h
mortality NOEC - Pimephales promelas (fathead minnow) - 6 mg/l - 7.0 d

Toxicity to daphnia and other aquatic invertebrates
mortality NOEC - Daphnia - 0.016 - 0.064 mg/l - 7 d

Toxicity to algae
EC50 - Daphnia magna (Water flea) - 0.035 mg/l - 48 h
EC50 - Pseudokirchneriella subcapitata - 0.31 mg/l - 72 h

**Persistence and degradability**

**Bioaccumulative potential**

Bioaccumulation
Onchorhynchus mykiss (rainbow trout) - 180 d
Bioconcentration factor (BCF): 17.4

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3086  Class: 6.1 (5.1)  Packing group: I
Proper shipping name: Toxic solids, oxidizing, n.o.s. (Potassium dichromate)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:
Poison Inhalation Hazard: No

IMDG
UN number: 3086  Class: 6.1 (5.1)  Packing group: I  EMS-No: F-A, S-Q
Proper shipping name: TOXIC SOLID, OXIDIZING, N.O.S. (Potassium dichromate)
Marine pollutant: Marine pollutant

IATA
UN number: 3086  Class: 6.1 (5.1)  Packing group: I
Proper shipping name: Toxic solid, oxidizing, n.o.s. (Potassium dichromate)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

OSHA Hazards
Oxidizer, Carcinogen, Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitiser, Corrosive, Teratogen, Mutagen

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
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SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.

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<td>1987-02-27</td>
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California Prop. 65 Components

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

Potassium dichromate

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16. OTHER INFORMATION

Further information
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