1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Potassium dichromate
Product Number : 207802
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 # (For both supplier and manufacturer) : (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, 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, Dermal (Category 1)
Acute toxicity, Inhalation (Category 1)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Respiratory sensitisation (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)
Chronic aquatic toxicity (Category 4)

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.
H370  Causes damage to organs through prolonged or repeated exposure if inhaled.
H400  Very toxic to aquatic life.
H413  May cause long lasting harmful effects 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:  0
Reactivity:  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  Causes eye burns.
Ingestion  May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms  :  Potassium bichromate
Formula  :  Cr₂K₂O₇
Molecular Weight  :  294.18 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium dichromate</td>
<td></td>
</tr>
</tbody>
</table>

   Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)

| CAS-No.   | 7778-50-9 |
| EC-No.    | 231-906-6 |
| Index-No. | 024-002-00-6 |

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

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 vapours, 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. Normal measures for preventive fire protection.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<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</td>
<td>0.1 mg/m³</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.0050 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CEIL</td>
<td>0.0010 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</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.

- **Full contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

- **Splash contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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**
- Form: crystalline
- Colour: no data available

**Safety data**
- pH: 3.5 - 5.0 at 29.4 g/l at 25 °C (77 °F)
- Melting point/freezing point: Melting point/range: 398 °C (748 °F) - lit.
- Boiling point: no data available
- Flash point: not applicable
- Ignition temperature: no data available
Auto-ignition temperature: no data available

Lower explosion limit: no data available

Upper explosion limit: no data available

Vapour pressure: no data available

Density: 2.680 g/cm³

Water solubility: ca.29.4 g/l at 20 °C (68 °F)

Partition coefficient: log Pow: 5

Relative vapour density: no data available

Odour: no data available

Odour Threshold: no data available

Evaporation rate: no data available

### 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 - male - 168 mg/kg

LD50 Oral - rat - female - 90.5 mg/kg

**Inhalation LC50**

LC50 Inhalation - rat - female - 4 h - 0.088 mg/l

**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 sensitisation**

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
  EC50 - Daphnia magna (Water flea) - 0.035 mg/l - 48 h
Toxicity to algae  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.
Very toxic to aquatic life.

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: No
Poison Inhalation Hazard: No

IMDG
UN number: 3086  Class: 6.1 (5.1)  Packing group: I
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, 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
Potassium dichromate  CAS-No.  7778-50-9  Revision Date  1993-04-24

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard
Massachusetts Right To Know Components

Potassium dichromate  CAS-No.  7778-50-9  Revision Date  1993-04-24

Pennsylvania Right To Know Components

Potassium dichromate  CAS-No.  7778-50-9  Revision Date  1993-04-24

New Jersey Right To Know Components

Potassium dichromate  CAS-No.  7778-50-9  Revision Date  1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.  CAS-No.  7778-50-9  Revision Date  1987-02-27

Potassium dichromate

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.  CAS-No.  7778-50-9  Revision Date  1987-02-27

Potassium dichromate

16. OTHER INFORMATION

Further information
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