Material Safety Data Sheet

Version 3.0
Revision Date 01/02/2009
Print Date 02/09/2009

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Potassium dichromate

Product Number : P2588
Brand : Sigma-Aldrich

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Potassium bichromate

Formula : $Cr_2K_2O_7$
Molecular Weight : 294.18 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Potassium dichromate			
7778-50-9	231-906-6	024-002-00-6	-

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitizer, Corrosive, Carcinogen

Target Organs

Lungs, Kidney, Blood

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

NFPA Rating
Health Hazard: 4
Fire: 0
Reactivity Hazard: 0

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	Causes skin burns. May be fatal if absorbed through skin.
Eyes	Causes eye burns.
Ingestion	May be fatal if swallowed. Causes burns.

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. Consult a physician.

In case of eye contact
Continue rinsing eyes during transport to hospital.Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point	not applicable
Ignition temperature	no data available

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

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

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

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 for cleaning up
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Avoid exposure - obtain special instructions before use. 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 combustible material.

Storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Potassium dichromate	7778-50-9	TWA	0.005 mg/m3	2006-11-27	US. Department of Labor - Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL) 29 CFR 1910.1000 Air Contaminants.
Remarks	See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in Sec.1910.1026 is stayed or is otherwise not in effect.				
		CEIL	0.001 mg/m3	2006-11-27	US. Department of Labor - Occupational Safety and Health Administration; (OSHA) Standards, Toxic and Hazardous Substances, Subpart Z 29 CFR Part 1910.1000, Table Z-2
	This standard applies to any operations or sectors for which the exposure limit in the Chromium (VI) standard, Sec.1910.1026, is stayed or is otherwise not in effect. (Z37.7-1971)				
		CEIL	0.1 mg/m3	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A
	See Table Z-2.				
		TWA	0.05 mg/m3	1994-09-01	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)
	Confirmed human carcinogen. Refers to Appendix A -- Carcinogens. NOC = not otherwise classified. 1994-1995 Adoption Substances for which there is a Biological Exposure Index or Indices. Substances for which the TLV is higher than the OSHA Permissible Exposure Limit				

	(PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Substance identified by other sources as a suspected or confirmed human carcinogen.

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. Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (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.

Eye protection
Safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

Safety data

pH	3.5 - 5.0 at 29.4 g/l at 25 °C (77 °F)
Melting point	398 °C (748 °F)
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Density	2.680 g/cm3
Water solubility	ca.29.4 g/l at 20 °C (68 °F)

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 25 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia.

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

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.

Irritation and corrosion

no data available

Sensitisation

May cause allergic respiratory reaction.

Chronic exposure

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

IARC:	Group 1 - Carcinogenic to humans (Potassium dichromate)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	1910.1026 (Potassium dichromate)

May alter genetic material.

Signs and Symptoms of Exposure

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

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	Causes skin burns. May be fatal if absorbed through skin.
Eyes	Causes eye burns.
Ingestion	May be fatal if swallowed. Causes burns.
Target Organs	Lungs, Kidney, Blood,

Additional Information
RTECS: HX7680000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

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

Ecotoxicity effects

Toxicity to fish	LC50 - Lepomis macrochirus - 0.131 mg/l - 96 h
	mortality NOEC - Pimephales promelas (fathead minnow) - 6 mg/l - 7 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

Further information on ecology

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

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

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. 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)
Marine pollutant: No
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: No

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
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption, Respiratory sensitizer, Corrosive, Carcinogen

DSL Status
All components of this product are on the Canadian DSL list.

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

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1991-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1991-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1991-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium dichromate	7778-50-9	1991-07-01

California Prop. 65 Components

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

16. OTHER INFORMATION

Further information
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