



Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98033
(425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

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PRODUCT NAME: POTASSIUM PERMANGANATE
 MSDS NUMBER: P1436VSX
 EFFECTIVE DATE: 5/2000
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Section 1 Chemical Product

PRODUCT NAME: potassium permanganate, KMnO4
 SYNONYMS: Permanganic acid potassium salt
 Chameleon mineral
 Condy's crystals
 Permanganate of potash

Section 2 Composition/Information on Ingredients

Material or component	CAS No.	%	Hazard Data
Potassium permanganate	7722-64-7	97% min. KMnO4	PEL-C
		5 mg Mn per cubic meter of air	
	TLV-TWA	0.2 mg Mn per cubic meter of air	

Section 3 Hazards Identification

1. Eye Contact

Potassium permanganate is damaging to eye tissue on contact. It may cause severe burns that result in damage to the eye.

2. Skin Contact

Contact of solutions at room temperature may be irritating to the skin, leaving brown stains. Concentrated solutions at elevated temperature and crystals are damaging to the skin.

3. Inhalation

Acute inhalation toxicity data are not available. However, airborne concentrations of potassium permanganate in the form of dust or mist may cause damage to the respiratory tract.

4. Ingestion

Potassium permanganate, if swallowed, may cause severe burns to mucous membranes of the mouth, throat, esophagus, and stomach.

Section 4 First Aid Measures

1. Eyes

Immediately flush eyes with large amounts of water for at least 15 minutes

holding lids apart to ensure flushing of the entire surface. Do not attempt to neutralize chemically. Seek medical attention immediately. Note to physician: Soluble decomposition products are alkaline. Insoluble decomposition product is brown manganese dioxide.

2. Skin

Immediately wash contaminated areas with large amounts of water. Remove contaminated clothing and footwear. Wash clothing and decontaminate footwear before reuse. Seek medical attention immediately if irritation is severe or persistent.

3. Inhalation

Remove person from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.

4. Ingestion

Never give anything by mouth to an unconscious or convulsing person. If person is conscious, give large quantities of water. Seek medical attention immediately.

Section 5 Fire Fighting Measures

NFPA* HAZARD SIGNAL

Health Hazard 1 = Materials which under fire conditions would give off irritating combustion products.

(less than 1 hour exposure) Materials which on the skin could cause irritation.

Flammability Hazard 0 = Materials that will not burn.

Reactivity Hazard 0 = Materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.

Special Hazard OX = Oxidizer

*National Fire Protection Association 704

FIRST RESPONDERS:

Wear protective gloves, boots, goggles, and respirator. In case of fire, wear positive pressure breathing apparatus. Approach site of incident with caution. Use Emergency Response Guide NAERG 96 (RSPA P5800.7). Guide No. 140.

FLASHPOINT None

FLAMMABLE OR EXPLOSIVE LIMITS Lower: Nonflammable Upper: Nonflammable

EXTINGUISHING MEDIA Use large quantities of water. Water will turn pink to purple if in contact with potassium permanganate. Dike to contain. Do not use dry chemicals, CO₂, Halon (r) or foams.

SPECIAL FIREFIGHTING PROCEDURES If material is involved in fire, flood with water. Cool all affected containers with large quantities of water.

Apply water from as far a distance as possible. Wear self-contained breathing apparatus and full protective clothing.

Red - Flammability 0

White - Special OX

Blue - Health 1

Yellow - Stability 0.

Section 6 Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Clean up spills immediately by sweeping or shoveling up the material. Do not return spilled material to the original container. Transfer to a clean metal drum. EPA banned the land disposal of D001 ignitable waste oxidizers. These wastes must be deactivated by reduction. To clean floors, flush with abundant quantities of water into sewer, if permitted by Federal, State, and Local regulations. If not permitted, collect water and treat chemically (Section 13).

PERSONAL PRECAUTIONS

Personnel should wear protective clothing suitable for the task. Remove all

ignition sources and incompatible materials before attempting clean-up.

Section 7 Handling and Storage

WORK/HYGENIC PRACTICES

Wash hands thoroughly with soap and water after handling potassium permanganate, and before eating or smoking. Wear proper protective equipment. Remove contaminated clothing.

VENTILATION REQUIREMENTS

Provide sufficient area or local exhaust to maintain exposure below the TLV-TWA.

CONDITIONS FOR SAFE STORAGE

Store in accordance with NFPA 430 requirements for Class II oxidizers. Protect containers from physical damage. Store in a cool, dry area in closed containers. Segregate from acids, peroxides, formaldehyde, and all combustible, organic or easily oxidizable materials including anti-freeze and hydraulic fluid.

Section 8 Exposure Controls/Personal Protection

RESPIRATORY PROTECTION

In the case where overexposure may exist, the use of an approved NIOSH-MSHA dust respirator or an air supplied respirator is advised.

Engineering or administrative controls should be implemented to control dust.

EYE

Faceshield, goggles, or safety glasses with side shields should be worn.

Provide eye wash in working area.

GLOVES

Rubber or plastic gloves should be worn.

OTHER PROTECTIVE EQUIPMENT

Normal work clothing covering arms and legs, and rubber or plastic apron should be worn..

Section 9 Physical and Chemical Properties

APPEARANCE AND ODOR Dark purple solid with a metallic luster, odorless

BOILING POINT, 760 mm Hg Not applicable

VAPOR PRESSURE (mm Hg) Not applicable

SOLUBILITY IN WATER % BY SOLUTION 6% at 20 deg C (68 deg F), and 20% at 65 deg C (149 deg F)

PERCENT VOLATILE BY VOLUME Not volatile

EVAPORATION RATE (BUTYL ACETATE=1) Not applicable

MELTING POINT Starts to decompose with evolution of oxygen (O₂) at temperatures above 150 deg C (302 deg F). Once initiated, the decomposition is exothermic and self-sustaining.

OXIDIZING PROPERTIES Strong oxidizer

SPECIFIC GRAVITY 2.7 @ 20 deg C (68 deg F)

VAPOR DENSITY (AIR=1) Not applicable

Section 10 Stability and Reactivity

STABILITY Under normal conditions, the material is stable.

CONDITIONS TO AVOID Contact with incompatible materials or heat (>150 deg C/302 deg F).

INCOMPATIBLE MATERIALS Acids, peroxides, formaldehyde, anti-freeze, hydraulic fluids, and all combustible organic or readily oxidizable inorganic materials including metal powders. With hydrochloric acid, toxic chlorine gas is liberated.

HAZARDOUS DECOMPOSITION PRODUCTS When involved in a fire, potassium permanganate may liberate corrosive fumes.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION Material is not known to polymerize.

Section 11 Toxicological Information

Potassium permanganate: Acute oral LD 50 (rat) = 780 mg/kg Male (14 days); 525 mg/kg Female (14 days)
 The fatal adult human dose by ingestion is estimated to be 10 grams. (Ref. Handbook of Poisoning: Prevention, Diagnosis & Treatment, Twelfth Edition)

EFFECTS OF OVEREXPOSURE

1. Acute Overexposure

Irritating to body tissue with which it comes into contact.

2. Chronic Overexposure

No known cases of chronic poisoning due to potassium permanganate have been reported. Prolonged exposure, usually over many years, to heavy concentrations of manganese oxides in the form of dust and fumes, may lead to chronic manganese poisoning, chiefly involving the central nervous system.

3. Carcinogenicity

Potassium permanganate has not been classified as a carcinogen by OSHA, NTP, IARC.

4. Medical Conditions Generally Aggravated by Exposure

Potassium permanganate will cause further irritation of tissue, open wounds, burns or mucous membranes.

Registry of Toxic Effects of Chemical Substances
 RTECS #SD6476000. Section 12 Ecological Information

Entry to the Environment

Potassium Permanganate has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble manganese dioxide (MnO₂).

Bioconcentration Potential

In non-reducing and non-acidic environments manganese dioxide (MnO₂) is insoluble and has a very low bioaccumulative potential.

Aquatic Toxicity

Rainbow trout, 96 hour LC 50 : 1.8 mg/L

Bluegill sunfish, 96 hour LC 50 : 2.3 mg/L

Section 13 Disposal Consideration

DEACTIVATION OF D001 IGNITABLE WASTE OXIDIZERS BY CHEMICAL REDUCTION

Reduce potassium permanganate in aqueous solutions with sodium thiosulfate (Hypo), or sodium bisulfite or ferrous salt solution. The thiosulfite or ferrous salt may require some dilute sulfuric acid to promote rapid reduction. If acid was used, neutralize with sodium bicarbonate to neutral pH. Decant or filter, and mix the sludge with sodium carbonate and deposit in an approved landfill. Where permitted, the sludge can be drained into sewer with large quantities of water. Use caution when reacting chemicals.

Section 14 Transport Information

U. S. DEPARTMENT OF TRANSPORTATION INFORMATION:

Proper Shipping Name: 49 CFR 172.101 ..Potassium Permanganate

ID Number: 49 CFR 172.101 UN 1490

Hazard Class: 49 CFR 172.101 Oxidizer

Division: 49 CFR 172.101 5.1

Packing Group: 49 CFR 172.101 II

Section 15 Regulatory Information

TSCA Listed in the TSCA Chemical Substance Inventory

CERCLA Hazardous Substance

Reportable Quantity: RQ - 100 lb 40 CFR 116.4; 40 CFR 302.4

RCRA Oxidizers such as potassium permanganate meet the criteria of ignitable waste. 40 CFR 261.21

SARA TITLE III Information

Section 302 Extremely hazardous substance: Not listed

Section 311/312 Hazard categories: Fire, acute and chronic toxicity
Section 313 potassium permanganate contains 97%
Manganese Compound as part of the chemical structure (manganese compounds
CAS Reg. No. N/A) and is subject to the reporting requirements of
Section 313 of Title III, Superfund Amendments and Reauthorization Act of
1986 and 40 CFR 372.

STATE LISTS Michigan Critical Materials Register: Not listed
California Proposition 65: Not listed
Massachusetts Substance List: 5 F8
Pennsylvania Hazard Substance List: E
FOREIGN LISTS Canadian Domestic Substances List (DSL) Listed
Canadian Ingredient Disclosure List Listed
European Inventory of Existing Chemical Substances (EINECS) 2317603

Section 16 Other Information
NIOSH National Institute for Occupational Safety and Health
MSHA Mine Safety and Health Administration
OSHA Occupational Safety and Health Administration
NTP National Toxicology Program
IARC International Agency for Research on Cancer
TSCA Toxic Substances Control Act
CERCLA Comprehensive Environmental Response, Compensation and Liability Act
of 1980
RCRA Resource Conservation and Recovery Act
SARA Superfund Amendments and Reauthorization Act of 1986
PEL-C OSHA Permissible Exposure Limit-OSHA Ceiling Exposure Limit
TLV-TWA Threshold Limit Value - Time Weighted Average (American Conference
of Governmental Industrial Hygienists)

For Additional Information:

Contact: MSDS Coordinator - Univar USA

During business hours, Pacific Time - (425) 889-3400

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END OF MSDS