

Material Safety Data Sheets

1. IDENTIFICATION

Product Name	Potassium Permanganate
Other Names	Chameleon mineral; Condensed crystal; Permanganate Of Potash; Permanganic Acid (Hmno4), Potassium Salt; Permanganic acid potassium salt
Code No	No Data Available
Uses	Oxidiser; disinfectant; deodoriser; bleach; tanning; reagent in analytical chemistry; medicine (antiseptic); air and water purification.
Chemical Family	No Data Available
Chemical Formula	KMnO ₄
Chemical Name	Potassium Permanganate
Product Description	No Data Available
Company	Arman sina.co
Contact Information	info@armansina.com www.armansina.com

2. HAZARD IDENTIFICATION

Hazard Categories	Oxidising Harmful Dangerous For The Environment
Risk Phrases	Harmful if swallowed. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contact with combustible material may cause fire.
Safety Phrases	This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/Material Safety Data Sheets.

Symbol



3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Potassium Permanganate	KMnO ₄	7722-64-7	>97.5 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	Never give anything by mouth to an unconscious or convulsing person. If person is conscious, give large quantities of water. Seek medical attention immediately.
Eye	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: Decomposition products are alkaline. Insoluble decomposition product formed is brown colored manganese dioxide.
Skin	Immediately wash contaminated areas with water. Remove contaminated clothing and footwear. Wash clothing and decontaminate footwear before reuse. Seek medical attention immediately if irritation is severe or persistent.
Inhaled	Remove person from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of patient. For inhalation, consider oxygen. Avoid gastric lavage or emesis. Decomposition products are alkaline. Insoluble decomposition product formed is brown colored manganese dioxide.
Medical Conditions Aggravated by Exposure	Potassium Permanganate solution will cause further irritation of tissue, open wounds, burns or mucous membranes. 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.

5. FIRE FIGHTING MEASURES

General Measures	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Approach incident with caution.
Flammability Conditions	Increases burning rate of combustible material.
Extinguishing Media	Use large quantities of water. Water will turn pink to purple when in contact with potassium permanganate. Dike to contain. Do not use dry chemicals, CO ₂ , Halon or foams, because they are not effective. 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.
Fire and Explosion Hazard	Powerful oxidizing material. May decompose spontaneously if exposed to heat (135 deg C / 275 deg F). May be explosive in contact with certain other chemicals (Section 10). May react violently with finely divided and readily oxidizable substances.
Hazardous Products of Combustion	When involved in a fire, potassium permanganate may liberate irritating, poisonous and/or corrosive fumes. Oxides of potassium and manganese may be formed.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment. Dam fire control water for later disposal.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	1Y

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid contact with combustible materials. Do not touch spilled material. Move containers away from spill to a safe area. Keep unnecessary people away, isolate hazard area and deny entry. Ensure adequate ventilation. Avoid dust formation. Remove all ignition sources and incompatible materials before attempting clean up.
Clean Up Procedures	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 or plastic drum. To clean up potassium permanganate solutions, follow either of the following two options: Option # 1: Dilute to approximately 6% with water, and then reduce with sodium thiosulfate, a bisulfite or ferrous salt solution. The bisulfite or ferrous salt may require some dilute sulfuric acid (10% w/w) to promote reduction. Neutralize with sodium carbonate to neutral pH, if acid was used. Decant or filter and deposit sludge in approved landfill. Where permitted, the sludge may be drained into sewer with large quantities of water. Option # 2: Absorb with inert media like diatomaceous earth or inert floor dry, collect into a drum and dispose of properly. Does not use saw dust or other incompatible media. Disposal of all materials shall be in full and strict compliance with all federal, state, and local regulations pertaining to permanganates.
Containment	Stop leak if safe to do so. Isolate the danger area.

Decontamination	To clean contaminated floors, flush with abundant quantities of water into sewer, if permitted by federal, state, and local regulations. If not, collect water and treat as described above.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Evacuation Criteria	Evacuate all unnecessary personnel.

7. HANDLING AND STORAGE

Handling	Wash hands thoroughly with soap and water after handling potassium permanganate. Do not eat, drink or smoke when working with potassium permanganate. Wear proper protective equipment. Remove clothing if it becomes contaminated. Provide sufficient mechanical and/or local exhaust to maintain exposure below the TLV/TWA.
Storage	Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidizable materials including antifreeze and hydraulic fluid. This product has a UN classification of 1490 and a Dangerous Goods Class 5.1 Oxidiser according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Use only plastic (PE, PP, PVC) or fibreglass containers/vessels corrosive to mild and stainless steels. Other tanks should be lined with chloride resistant materials. Pumps should also be lined with chloride resistant materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC). However, the following has been provided for Potassium permanganate (7722-64-7): ACGIH: 0.2 mg/m³ TWA (as Mn) NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	RESPIRATOR: In cases where overexposure to dust may occur, 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 (AS1715/1716). Measurement Element: Manganese (Mn) 10 mg/m³: Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100. Any supplied-air respirator. 25 mg/m³: Any supplied-air respirator operated in a continuous-flow mode. Any powered, air-purifying respirator with a high-efficiency particulate filter. 50 mg/m³: Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter. Any supplied-air respirator with a tight-fitting face piece that is operated in a continuous-flow mode. Any powered, air-purifying respirator with a tight-fitting face piece and a high-efficiency particulate filter. Any self-contained breathing apparatus with a full face piece. Any supplied-air respirator with a full face piece. 500 mg/m³: Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode. Emergency or planned entry into unknown concentrations or IDLH conditions - Any self-contained breathing apparatus that has a full face piece and is operated in a pressure-demand or other positive-pressure mode. Escape: Any air-purifying, full-face piece respirator equipped with an N100, R100, or P100 filter. Any appropriate escape-type, self-contained breathing apparatus. EYES: Face shield, goggles, or safety glasses with side shields should be worn. Provide eyewash in working area

(AS1336/1337).

HANDS: Rubber or plastic gloves should be worn (AS2161).

CLOTHING: Chemically resistant clothing covering arms and legs, and rubber or plastic apron should be worn.

Caution: If clothing becomes contaminated, wash off immediately (AS3765/2210).

Work Hygienic Practices

No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Solid with metallic luster
Odour	Odourless
Colour	Dark purple
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	Starts to decompose with evolution of oxygen (O ₂)
Freezing Point	No Data Available
Solubility	No Data Available
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	158.034 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Relative Density: 2.7 (20 deg C)
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	Increases burning rate of combustible material.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	Powerful oxidizing material. May decompose spontaneously if exposed to heat (135 deg C / 275 deg F).
Reactions That Release Gases or Vapours	No Data Available

Release of Invisible Flammable
Vapours and Gases

No Data Available

10. STABILITY AND REACTIVITY

Chemical Stability	Product is stable under normal conditions of use, storage and temperature.
Conditions to Avoid	Contact with incompatible materials or heat (150 deg C / 302 deg F) could result in violent exothermic chemical reaction.
Materials to Avoid	Acids, peroxides, formaldehyde, anti-freeze, hydraulic fluids and all combustible organic or readily oxidizable inorganic materials including metal powders. With hydrochloric acid, chlorine gas is liberated.
Hazardous Decomposition Products	When involved in a fire, potassium permanganate may liberate irritating, poisonous and/or corrosive fumes. Oxides of potassium and manganese may be formed.
Hazardous Polymerisation	This product is not known to polymerize.

11. TOXICOLOGICAL INFORMATION

General Information	LC 50 inhalation: No data available. LD 50 dermal: No data available. LD 50 oral rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days). Harmful if swallowed. ALD: 10g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur. CHRONIC TOXICITY: No known cases of chronic poisoning due to permanganates 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. CARCINOGENICITY: Potassium permanganate has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.D
Eyelrritant	Potassium Permanganate is damaging to eye tissue on contact. It may cause severe burns that result in damage to the eye.
Ingestion	Harmful if swallowed. Potassium Permanganate, if swallowed, may cause burns to mucous membranes of the mouth, throat, esophagus, and stomach. The estimated lethal human dose is 10 g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache, and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.
Inhalation	The product may be absorbed into the body by inhalation. Major effects of exposure: respiratory disorder, cough. 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.
SkinIrritant	Momentary contact of solution at room temperature may be irritating to the skin, leaving brown stains. Prolonged contact is damaging to the skin. Concentrated solutions at elevated temperature and crystals are damaging to the skin. The product may be absorbed into the body through the skin. Major effects of exposure: severe irritation, damage to the skin, and brown staining of skin.
Carcinogen Category	No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	96Hr LC50 Rainbow trout 1.8 mg/L 96Hr LC50 Bluegill sunfish 2.3 mg/L 96Hr LC50 Milk fish (Chanos Chanos >1.4 mg/L 96Hr LC50 Carassius auratus 3.3-3.93 mg/L (static) 96Hr LC50 Cyprinus carpio 2.97-3.11 mg/L 96Hr LC50 Cyprinus carpio 3.16-3.77 mg/L 96Hr LC50 Lepomis macrochirus 2.3 mg/L (flow-through) 96Hr LC50 Lepomis macrochirus 1.8-5.6 mg/L (static) 96Hr LC50 Lepomis macrochirus 2.7 mg/L (static) 96Hr LC50 Oncorhynchus mykiss 1.08-1.38 mg/L 96Hr LC50 Oncorhynchus mykiss 0.77-1.27 mg/L
Persistence/Degradability	Permanganate has a low estimated lifetime in the environment, being readily converted by oxidizable materials to insoluble MnO2.

Mobility	Miscible in water.
Environmental Fate	Do NOT let product reach waterways, drains and sewers. Very toxic to aquatic organisms.
Bioaccumulation Potential	In non-reducing and non-acidic environments, MnO ₂ is insoluble and has a very low bioaccumulative potential.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local regulations. All empty packaging should be disposed of in accordance with Local Regulations or recycled/reconditioned at an approved facility. Offer surplus and non-recyclable product or solutions to a licensed disposal company.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. For disposal of potassium permanganate solutions, follow procedures in Section 6 and deactivate the permanganate to insoluble manganese dioxide. Dispose of it in a permitted landfill.

14. TRANSPORT INFORMATION

Land Transport

Proper Shipping Name	POTASSIUM PERMANGANATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
ERG	140 Oxidizers
UN Number	1490
Hazchem	1Y
Pack Group	II
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	POTASSIUM PERMANGANATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	1490
Hazchem	1Y
Pack Group	II
Special Provision	No Data Available
EMS	FH,SQ
Marine Pollutant	No

Air Transport

IATA

Proper Shipping Name	POTASSIUM PERMANGANATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	1490
Hazchem	1Y
Pack Group	II
Special Provision	No Data Available

15. OTHER INFORMATION

Revision	2
Key/Legend	< Less Than > Greater Than atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand Degrees Celcius Degrees Farenheit g Grams g/cm Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m Kilograms per Cubic Metre lb Pound LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH₂O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Heath and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit Pa Pascal ppb Parts per Billion ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch R Rankine RCP Reciprocal Calculation Procedure STEL Short Term Exposure Limit TLV Threshold Limit Value tne Tonne TWA Time Weighted Average ug/24H Micrograms per 24 Hours UN United Nations wt Weight