



# Safety Data Sheet

## Section 01 - Identification

<b>Product Identifier</b>	Potassium Permanganate, all grades
<b>Other Means of Identification</b>	Potassium permanganate NSF grade [free flowing]; potassium permanganate NSF grade [crystal]; potassium permanganate free flow; manganese oxide; oxide of manganese [VII]; permanganate acid, potassium salt; potassium manganite [VII].
<b>Product Use and Restrictions on Use</b>	Oxidizing and bleaching, disinfectant, deodorizer, removes iron and manganese from water, tanning, algaecide, dye ingredient.
<b>Initial Supplier Identifier</b>	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
<b>Prepared By</b>	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
<b>24-Hour Emergency Phone</b>	Phone: 1 (306) 664 – 2522

## Section 02 - Hazard Identification

### GHS-Classification

<b>Acute Toxicity-Oral</b>	Category 4
<b>Skin Corrosion/Irritation</b>	Category 1C
<b>Serious Eye Damage/Irritation</b>	Category 1

### Physical Hazards

<b>Oxidizing Solid</b>	Category 2
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### **Danger**

### **Hazards Statements**

H272 – May intensify fire; oxidizer.

H302 – Harmful if swallowed.

H314 – Causes severe skin burns and eye damage.

### **Pictograms**



## Precautionary Statements

P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 – Keep away from clothing, and other combustible materials.

P260 – Do not breathe dust.

P264 – Wash affected body parts thoroughly after handling.

P270 – Do not eat, drink or smoke when using this product.

P280 – Wear protective gloves, protective clothing, eye protection, and face protection.

P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT Induce vomiting.

P312 – Call a POISON CENTRE/doctor if you feel unwell.

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin.

P363 – Wash contaminated clothing before reuse.

P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P310 – Immediately call a POISON CENTER or doctor/physician.

P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 – Store locked up.

P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

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## Section 03 - Composition / Information on Ingredients

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Chemical Name	CAS Number	Weight %	Unique Identifiers
Potassium Permanganate	7722-64-7	97-100%	

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## Section 04 - First Aid Measures

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<b>Inhalation</b>	If symptoms are experienced, remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.
<b>Skin Contact / Absorption</b>	Avoid direct contact. Remove contaminated clothing. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. Quickly transport victim to an emergency care facility. Decontaminate clothing, shoes and leather goods before re-use as they may be a fired hazard.
<b>Eye Contact</b>	Avoid direct contact. Contact lenses should never be worn when working with this product. Flush immediately with water for at least 30 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. If a contact lens is present, remove only if easy to do so. Seek immediate medical attention.
<b>Ingestion</b>	NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim rinse mouth with water again. Seek medical attention.
<b>Additional Information</b>	Not Available

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## Section 05 - Fire Fighting Measures

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<b>Suitable Extinguishing Media</b>	Strong oxidizing agent, therefore use flooding quantities of water spray or fog.
<b>Unsuitable Extinguishing Media</b>	DO NOT use carbon dioxide, dry chemical powder or other extinguishing agents that smother flames, since they are not effective in extinguishing fires involving oxidizers. Some chemical extinguishing agents such as dry chemical powder react with potassium permanganate.
<b>Specific Hazards Arising From the Chemical</b>	Thermal decomposition yields oxygen and toxic fumes of manganese oxides. This can increase the risk of fire and explosion. Closed containers may rupture violently.

**Special Protective Equipment and Precautions for Fire-Fighters** Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

**Further Information** Not Available

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## Section 06 - Accidental Release Measures

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**Personal Precautions / Protective Equipment / Emergency Procedures** Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so.

**Environmental Precautions** Prevent material from entering sewers.

**Methods and Materials for Containment and Cleaning Up** SMALL SPILLS OF SOLID: Shovel spilled solid into clean, dry, labelled containers and cover. Flush area with water.  
LARGE SPILLS: Contact fire and emergency services and supplier for advice.

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## Section 07 - Handling and Storage

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**Precautions for Safe Handling** This material is a STRONG OXIDIZER and is CORROSIVE to skin and eyes. Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Avoid generating dusts or mists. Avoid release of mists or dusts into workplace air. Use smallest possible amounts in a well-ventilated area, separate from the storage area. Storage facilities should be made of fire resistant materials. Wood and other organic/combustible materials should not be used on floors, structural materials and ventilation systems in the storage area.

**Conditions for Safe Storage** Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Protect from freezing. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Containers of this material may be hazardous when empty since they retain product residues(vapor and liquid); observe all warnings and precautions listed for the product.

**Incompatibilities** Trifluoroacetic acid, anhydride, acetic acid, reducing agents, concentrated hydrogen peroxide, hydrazine, arsenites, bromides, charcoal, mercurous salts, hypophosphites, hyposulfites, sulfites, peroxides, oxalates, sulfur, phosphorus, antimony, arsenic, organic matter, organic compounds, concentrated acids, titanium, ammonium nitrate, hydroxylamine, ammonium salts, dimethyl sulfoxide.

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## Section 08 - Exposure Controls and Personal Protection

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### Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Potassium Permanganate	ACGIH	TLV-TWA	0.02mg/m <sup>3</sup> (respirable fraction)
	OSHA	PEL-T-C	5mg/m <sup>3</sup>

### Engineering Control(s)

**Ventilation Requirements** Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.

**Other** Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.

## Protective Equipment

<b>Eyes/Face</b>	Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.
<b>Hand Protection</b>	Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
<b>Skin and Body Protection</b>	Body suite, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.  Impervious boots of chemically resistant material should be worn at all times. No special footwear is required other than what is mandated at place of work.
<b>Respiratory Protection</b>	NIOSH RECOMMENDATIONS FOR MANGANESE AND COMPOUNDS AND FUME (AS Mn) CONCENTRATIONS IN AIR: Up to 10mg/m <sup>3</sup> = Any particulate respirator equipped with an N95, R95 or P95 filter. Up to 25mg/m <sup>3</sup> = Any supplied-air respirator operated in a continuous-flow mode; OR any powered, air-purifying respirator with a high-efficiency particulate filter. Up to 50mg/m <sup>3</sup> = Any air-purifying full-face respirator with an N100, R100, or P100 filter; OR any supplied-air respiratory that has a tight-fitting facepiece. Up to 500mg/m <sup>3</sup> = Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.
<b>Thermal Hazards</b>	Not Available

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## **Section 09 - Physical and Chemical Properties**

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### Appearance

<b>Physical State</b>	Solid
<b>Colour</b>	Dark purple
<b>Odour</b>	Odourless
<b>Odour Threshold</b>	Not Applicable

### Property

<b>pH</b>	10 (0.1M solution)
<b>Melting Point/Freezing Point</b>	Decomposes.
<b>Initial Boiling Point and Boiling Range</b>	Decomposes.
<b>Flash Point</b>	Not Applicable
<b>Evaporation Rate</b>	Not Applicable
<b>Flammability</b>	Non-Flammable. However, the product is a strong oxidizer and will give off oxygen when heated.
<b>Upper Flammable Limit</b>	Not Applicable
<b>Lower Flammable Limit</b>	Not Applicable
<b>Vapour Pressure (mm Hg, 20°C)</b>	Approximately zero

<b>Vapour Density (Air=1)</b>	Not Applicable
<b>Relative Density</b>	Not Available
<b>Solubility(ies)</b>	Moderately soluble in water Soluble in acetone, pyridine, benzonitrile and sulfolane.
<b>Partition Coefficient: n-octanol/water</b>	Not Applicable
<b>Auto-ignition Temperature</b>	Not Available
<b>Decomposition Temperature</b>	200-300°C
<b>Viscosity</b>	Not Applicable
<b>Explosive Properties</b>	Not considered to be an explosive hazard.
<b>Specific Gravity (Water=1)</b>	2.70
<b>% Volatiles by Volume</b>	Not Available
<b>Formula</b>	KMnO <sub>4</sub>
<b>Molecular Weight</b>	158.04

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## Section 10 - Stability and Reactivity

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<b>Reactivity</b>	Potassium permanganate is an NFPA Class 2 Oxidizer. This is an oxidizing material that will increase the burning rate or which may cause spontaneous ignition of combustible material with which it comes in contact.
<b>Stability</b>	Stable under ordinary conditions of use and storage.
<b>Possibility of Hazardous Reactions</b>	None reported.
<b>Conditions to Avoid</b>	Temperatures higher than 200°C.
<b>Incompatible Materials</b>	Trifluoroacetic acid, anhydride, acetic acid, reducing agents, concentrated hydrogen peroxide, hydrazine, arsenites, bromides, charcoal, mercurous salts, hypophosphites, hyposulfites, sulfites, peroxides, oxalates, sulfur, phosphorus, antimony, arsenic, organic matter, organic compounds, concentrated acids, titanium, ammonium nitrate, hydroxylamine, ammonium salts, dimethyl sulfoxide.
<b>Hazardous Decomposition Products</b>	Thermal decomposition yields oxygen and toxic fumes of manganese oxides which increases the risk of fire and explosion.

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## Section 11 - Toxicological Information

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### Acute Toxicity

<b>Component</b>	<b>Oral LD<sub>50</sub></b>	<b>Dermal LD<sub>50</sub></b>	<b>Inhalation LC<sub>50</sub></b>
Potassium Permanganate	750mg/kg (rat)	Not Available	Not Available

## Chronic Toxicity – Carcinogenicity

### Component

### IARC

Potassium Permanganate

Not considered to be carcinogenic by IARC or ACGIH.

<b>Skin Corrosion/Irritation</b>	Corrosive to the skin. Can cause severe burns, blisters, ulcers and permanent scarring.
<b>Ingestion</b>	Corrosive and can cause harmful effects such as burns to the mouth, throat and digestive tract, vomiting, difficulty swallowing, and diarrhea. Systemic effects include irregular heartbeat, low blood pressure, hallucinations, and bluish coloration of the skin, metabolic acidosis, rupturing of red blood cells, kidney and liver damage, inflammation of the pancreas, coma and death.
<b>Inhalation</b>	Inhalation of dust and mists may cause irritation to the nose, throat and respiratory tract with symptoms such as sore throat, coughing, shortness of breath and difficult breathing.
<b>Serious Eye Damage/Irritation</b>	Corrosive to the eyes. Can cause severe eye damage with permanently altered vision or blindness.
<b>Respiratory or Skin Sensitization</b>	Repeated contact may cause sensitization in some individuals.
<b>Germ Cell Mutagenicity</b>	Potassium permanganate may be mutagenic based on a study in live mice. No human information was located.
<b>Reproductive Toxicity</b>	It is not possible to conclude that potassium permanganate causes reproductive toxicity.
<b>STOT-Single Exposure</b>	Causes respiratory tract irritation with possible burn.
<b>STOT-Repeated Exposure</b>	Repeated intake of manganese compounds by ingestion and inhalation can result in chronic manganese poisoning characterized by impairment of the central nervous system. Early symptoms include sluggishness, sleepiness, and weakness of the legs. Advances cases show uncontrollable laughter, spastic gait, emotional disturbances, fixed facial expressions, and falling down while walking. Target organs: respiratory system, central nervous system, blood, and kidneys.
<b>Aspiration Hazard</b>	A higher incidence of pneumonia has been found in workers exposed to some airborne manganese compounds.
<b>Synergistic Materials</b>	Not Available

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## **Section 12 – Ecological Information**

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### Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Potassium Permanganate	EC <sub>50</sub> (Green algae, 72hr): 0.41mg/L	LC <sub>50</sub> (Gambusia affinis): 4.2mg/L	EC <sub>50</sub> (Daphnia magna, 48hr):0.084mg/L
<b>Biodegradability</b>	Not Available		
<b>Bioaccumulation</b>	Not Available		
<b>Mobility</b>	Material can potentially percolate into soil.		
<b>Other Adverse Effects</b>	Not Available		

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## **Section 13 – Disposal Considerations**

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<b>Waste From Residues/Unused Products</b>	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
<b>Contaminated Packaging</b>	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

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## Section 14 – Transport Information

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UN Number	UN1490	
UN Proper Shipping Name	POTASSIUM PERMANGANATE	
Transport Hazard Class(es)	5.1	
Packaging Group	II	
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.	
Special Precautions	Not Available	
Transport in Bulk	Not Available	
Additional Information	<u>Packing Group</u>	<u>Limited Quantity Index</u>
	II	1 Kg

### TDG

**Other** Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.

**TDG PRODUCT CLASSIFICATION:** This product has been classified on the preparation date specified at section 16 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

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## Section 15 – Regulatory Information

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**NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.**

**NSF Certification**..... Product is certified under NSF for coagulation and flocculation at a maximum dosage of: 50 mg/L

NSF product use restrictions based on requirements obtained from the NSF website for current requirements.

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## Section 16 – Other Information

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**Preparation Date** August 28, 2015

**Note:** The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

### **Attention: Receiver of the chemical goods / SDS coordinator**

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution<sup>®</sup> initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

### **References:**

- 1) CHEMINFO
- 2) eChemPortal
- 3) TOXNET
- 4) Transportation of Dangerous Goods Canada
- 5) HSDB
- 6) ECHA
- 7) PAN

## **ClearTech Industries Inc. - Locations**

Corporate Head Office: 1500 Quebec Avenue, Saskatoon, SK, S7K 1V7

Phone: 1(306) 664 – 2522

Fax: 1(888) 281-8109

[www.cleartech.ca](http://www.cleartech.ca)

**24 Hour Emergency Number - All Locations – 1(306) 664-2522**