

# SAFETY DATA SHEET

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## POTASSIUM PERMANGANATE

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

#### 1.1 Identification of the product

Product Name	Potassium Permanganate
CAS-No.	7722-64-7
EC No.	231-760-3

#### 1.2 Uses of the substance

Water Treatment, Disinfectant, Industrial Use, Intermediates and as an oxidant in several other applications.

#### 1.4 Emergency contact

BLACK DIAMOND CHEM.

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification according to Regulation (EC) No. 1272/2008 [CLP]

##### Physical Hazards

Oxidising Solids Category 2

##### Health Hazards

Acute toxicity, Oral	Category 4
Skin corrosion/irritation	Category 1B
Specific target organ toxicity, single exposure	Category 1 (Respiratory System)
Specific target organ toxicity, repeated exposure	Category 1 (Respiratory System, Central Nervous System)

##### Environmental Hazards

Acute aquatic toxicity	Category 1
Chronic aquatic toxicity	Category 1

Product may cause long term adverse effects in aquatic environment. Very toxic to aquatic life.

##### OSHA defined hazards

Not classified

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### POTASSIUM PERMANGANATE

#### 2.2 Labeling according to Regulation (EC) No. 1272/2008 [CLP] Hazard pictograms



Signal word



Danger



#### Hazard Statements

H272	May intensify fire; oxidizer
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H370	Causes damage to organs
H372	Causes damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects

#### Precautionary Statements

P102	Keep out of reach of children.
P220	Keep/store away from clothing/combustible materials.
P264	Wash hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P303+P361+P353	If on skin (or hair): Remove/take off immediately a contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	If in eyes: Rinse cautiously with water for several m. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice / attention if you feel unwell.
P501	Dispose of contents / container to hazardous or special waste collection point.

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substance related information

Chemical name	Potassium permanganate
Trade name	Potassium permanganate
Synonyms	Permanganate of potash, Condy's Crystals, Potassium Permanganate

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### POTASSIUM PERMANGANATE

Molecular formula	KMnO <sub>4</sub>
Molecular weight	158.0339
CAS No.	7722-64-7
EC No (EINECS/ELINCS)	231-760-3
EU INDEX No.	025-002-00-9
International Chemical Safety Cards (ICSC)	0672
ZVG-No.	4070
RTECS-No.	SD6475000

#### SECTION 4: FIRST AID MEASURES

##### 4.1 Measures

**In case of eye contact** – Rinse immediately with plenty of water for at least 20 minutes and seek medical attention.

Note to physician: Soluble content of decomposed product is alkaline in nature. Insoluble brown-colour stain is manganese dioxide.

**In case of skin contact**- Flush with large amounts of water before removing contaminated clothing. If irritation persists, get medical attention. Wash contaminated clothing before reuse.

**In case of inhalation** – If symptoms are experienced, remove source of contamination or move victim to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.

**In case of ingestion** - Get medical attention or advice. Give several glasses of water or milk. Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions.

##### 4.2 Potential health effects & symptoms

**Eyes** – May cause severe eye injury. Contact can produce hardened, ulcer-like injury on eye. Conjunctivitis and bleeding may occur. In extreme cases, cloudiness or discoloration of the cornea may occur.

**Skin** – Product acts as a highly corrosive agent to the skin. Contact may produce burns and/or tissue necrosis.

**Inhalation** – May irritate nose, throat and respiratory tract. In severe cases, pulmonary edema may occur that could potentially lead to death. Other symptoms could include sore throat, coughing, shortness of breath and difficult breathing.

**Ingestion** – May irritate mouth and throat. Fatal oral dose is estimated at 10 grams. Death may occur up to one month from the time of poisoning. Symptoms may include nausea, vomiting, stridor, slow pulse and decreased blood pressure.

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#### **4.3 Treatment**

Get medical attention promptly.

### **SECTION 5: FIRE FIGHTING MEASURES**

#### **5.1 Extinguishing media**

Use large quantities of water.

#### **5.2 Special hazards arising from the substance or mixture**

Potassium oxides, Manganese/manganese oxides

#### **5.3 Fire fighting equipments/instructions**

Wear full protective clothing and self-contained breathing apparatus.

#### **5.4 Unusual fire and explosion hazards**

Powerful oxidizing product. May explode when heated or when exposed to flames or sparks. Increases burning rate of combustible substances.

### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### **6.1 Personal Precautions**

Wear personal protection equipments. Contain the discharged material avoiding generation and spreading of dust. Ensure adequate ventilation. Do Not smoke. Do Not open fire or other sources of ignition.

#### **6.2 Environmental Precautions**

In case of accidental release into the environment, keep the product away from drains, sewers, ground water and soil.

#### **6.3 Cleanup Procedures**

Sweep or shovel the spilled material into covered containers. Do not absorb in saw dust or other combustible absorbents.

#### **6.4 Additional Information**

Refer section 13 for waste disposal.

### **SECTION 7: HANDLING & STORAGE**

#### **7.1 Precautions for safe handling**

Wear personal protective equipment. Avoid spilling, skin & eye contact. Wash thoroughly with water after handling. Remove clothing if it becomes contaminated. Provide adequate ventilation to maintain exposure below TLV/TWA limits.

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#### 7.2 Recommended storage methods

Keep the material in a cool and dry place, tightly closed, away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Keep apart from acids, formaldehydes, peroxides and all combustible organic or easily oxidizable products including antifreeze and hydraulic fluid.

#### 7.3 Specific end uses

Water Treatment, Industrial Use, Intermediates and as an oxidant for various other applications.

### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control Parameters

Product Name	STD	TWA – 8 hrs	STEL – 15 min	Remarks
Potassium Permanganate	WEL	0.5 mg/m <sup>3</sup>		

\*WEL: Workplace Exposure Limit

#### 8.2 Engineering control

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement. Provide dust collectors with explosion vents

#### 8.3 Personal protective equipment

**Eye/Face:** Wear chemical safety goggles and face shield

**Skin:** Wear impervious gloves, boots and coveralls to avoid skin contact.

**Respiratory:** For dust use approved dust mask. For higher exposures, use air respirator with a full face piece operative in the positive pressure mode.

**General:** Have an eyewash fountain and safety shower available in the work area.

#### 8.4 Environmental exposure controls

In case of handling bulk material, take adequate precautions to avoid accidental release to water courses.

### SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

#### 9.1 Properties

Appearance	: Dark purple Crystals
Physical state	: Solid
Odour	: Odourless
Odour threshold	: Not applicable
pH of the substance	: Not applicable
Flash Point	: Not Flammable
Flammable Limits	: Not Flammable
Vapour pressure	: Not applicable
Vapour density	: Not applicable
Evaporation Rate	: Not applicable
Auto ignition temperature	: Not flammable

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### POTASSIUM PERMANGANATE

Boiling Point	: Not applicable
Melting Point	: Decomposes without melting around 240 Deg C
Decomposition temperature	: Decomposes at 240 Deg C
Solubility (in water)	: 6.4 g/100 ml at 20 Deg C
Viscosity	: Not applicable
Partition Coefficient	: Not applicable
Specific gravity	: 2.7 g/cc at 20 Deg C
Molecular weight	: 158.04
Auto flammability	: Not pyrophoric
Oxidizing Properties	: Oxidizing solid.

The substance itself does not burn, but in contact with combustible substances, it increases the risk of fire and can fuel any existing fire substantially.

#### **9.2 Other information**

The data provided in this section is to be used for product safety and handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

## **SECTION 10: STABILITY AND REACTIVITY**

### **10.1 Reactivity**

No data available

### **10.2 Chemical stability**

Material is stable in air and light under normal conditions.

### **10.3 Possibility of hazardous reactions**

No data available

### **10.4 Conditions to avoid**

Avoid heat, flames and other source of ignition as this could result in violent exothermic chemical reaction.

### **10.5 Incompatible materials**

Organic materials, reducing materials, strong acids, alkali metals, peroxides, and all combustible organic and readily oxidizable inorganic materials.

### **10.6 Hazardous Decomposition products**

Upon heating, oxygen is released which increases potential of fire. Thermal decomposition products include potassium oxides and oxides of manganese.

### **10.7 Additional information**

Material is not known to polymerize.

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#### SECTION 11: TOXICOLOGICAL INFORMATION

##### 11.1 Toxicokinetics, metabolism and distribution

Derived No Effect Level (DNEL) dermal toxicity for workers : 1.25 mg/kg bw/day

Predicted No Effect Concentration (PNEC) for Potassium permanganate in aquatic environment is 0.06 mg/L.

Predicted No Effect Concentration for Potassium permanganate in sewage treatment plant is 1.64 mg/L.

##### 11.2 Acute toxicity

###### Ingestion:

LD50 oral Rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days) Harmful if swallowed. ALD: 10 g.  
Ingestion may cause nausea, vomiting, sore throat, stomach ache and eventually lead to a perforation of the intestine. Injuries to liver and kidney may occur.

###### Contact with skin:

Dermal Exposure for workers : 0.37 mg/kg/day, Dermal Risk Characterization Ratio : 0.10

LD50 dermal: No data available

The product may get absorbed into the body through skin.

Major effects of exposure: Severe irritation, brown stain on skin

###### Inhalation:

Inhalation Exposure for workers : 0.002 mg/m<sup>3</sup>, Inhalation Risk Characterization Ratio : 0.002

LC50 inhalation: No data available

The product may be absorbed into the body by inhalation.

Major effects of exposure: Cough, respiratory disorder.

##### 11.3 CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

IARC : Not listed

NTP Biennial Report on Carcinogens : Not listed

OSHA carcinogen : Not listed

##### 11.4 Phototoxicity

No acute phototoxic potential –in-vivo phototoxicity unlikely.

#### SECTION 12: ECOLOGICAL INFORMATION

##### 12.1 Ecotoxicity

Harmful to aquatic life in very low concentrations.

##### 12.2 Toxicity

LC50, 96 hrs, Fish mg/l 0.47

##### 12.3 Persistence and degradability

Product not readily biodegradable as it is an inorganic substance.

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#### **12.4 Bioaccumulative potential**

Based on available data on decomposition and bio accumulation potential, environmental damage is unlikely.

#### **12.5 Mobility in soil**

No information is available.

#### **12.6 Result of PBT and vPvB assessment**

The substance does not meet the criteria for classification on PBT or vPvB.

#### **12.7 Other adverse effects**

Not known.

### **SECTION 13: DISPOSAL CONSIDERATION**

#### **13.1 Appropriate disposal**

Dispose of waste and residues in accordance with applicable local, state and federal requirements

#### **13.2 List of proposed waste codes/waste designations in accordance with EWC**

Waste codes product: 16 09 01 permanganates Waste codes packing : -

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

### **SECTION 14: TRANSPORT INFORMATION**

Product	: Potassium Permanganate
UN-No.	: 1490
Hazard Identification No.	: 50
ADR/RID/AND/IMDG/ICAO Class	: 5.1
Classification Code	: O2
Packing group (ADR/RID/AND/IMDG/ICAO)	: II
Hazard Class	: Oxidizer
Proper shipping name	: Potassium Permanganate

### **SECTION 15: REGULATORY INFORMATION**

Markings according to EU guidelines

The product has been classified and marked in accordance with EU directives/ordinances on hazardous materials.

<b>Chemical Name</b>	<b>CAS No.</b>	<b>EINECS</b>	<b>UN Number</b>
Potassium Permanganate	7722-64-7	231-760-3	UN 1490



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### POTASSIUM PERMANGANATE

#### 15.1 Classification according to Regulation (EC) No 1272/2008 [CLP]

##### Hazard Pictograms



Signal Word



Danger



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##### US Federal Regulations

##### Chemical Inventory Status

Ingredient	CAS No.	TSCA	EC
Potassium Permanganate	7722-64-7	Yes	Yes

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#### Federal, State & International Regulations

**Ingredient CAS No.** Potassium  
Permanganate 7722-64-7

**CERICA**  
Yes (RQ=100 lbs)

**RCRA**  
D001

**TSCA 8(d)**  
No

#### 15.2 Chemical Safety Assessment

No Data Available

#### SECTION 16: OTHER INFORMATION

##### Risk management measures related to human health:

Avoid contact with eyes.  
Avoid contact with skin.  
Do not breath dust.  
Use good ventilation or fume cupboard.  
Use protective goggles.  
Use Protective gloves against corrosives.  
Use dust or gas filter mask.  
In case of spraying water solution use gas mask.

##### Risk management measures related to the Environment:

Avoid release to the environment – water.  
Do not mix with acids and organic compounds.  
Respect good hygiene and housekeeping.

##### Training Instruction:

Make sure that employees handling the product are aware of hazard risk.

##### Data Sources:

Data arise from literature

##### DISCLAIMER:

All information, suggestions and recommendations contained herein regarding this product are based on data obtained from recognized technical sources and literature. BLACK DIAMOND CHEM... makes no warranty, expressed or implied as to its accuracy or completeness, and none is made as to the use of this product by others which are beyond our control. It is the user's responsibility to determine the safety, toxicity and suitability for their application and use, handling and disposal of the product. The information in this SDS is related only to the product designated herein and is not related to the use in combination, mixture and process or otherwise with any other product.