



Safety Data Sheet (SDS / MSDS) Potassium Permanganate

Section 1: Chemical Product and Company Identification

Product Name: Potassium Permanganate

CAS Number: 7722-64-7

UN Number: UN 1439

Synonym: Condyl's Crystal, Permanganate of Potash

Chemical Name: Potassium Permanganate

Chemical Formula: $KMnO_4$

Contact Information:

Laboratory Chemicals

Gloucester House

Farnborough Road

Farnborough

GU14 6TL

United Kingdom

Telephone (UK): 01252 675759

Telephone (International): 0044 1252 675759

E-Mail: info@laboratorychemicals.co.uk

Section 2: Data Composition

Name: Potassium Permanganate

Formula: $KMnO_4$

CAS Number: 7722-64-7

% By Weight: 100%

Toxicological Data on Compositions: Potassium Permanganate: LD50: Acute: 1090 mg/kg [Rat].2157 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Possibly corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: organic materials, metals, combustible materials

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of organic materials, of metals.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

Spontaneously flammable on contact with ethylene glycol. Potassium Permanganate being conveyed through propylene tube ignited the tube. When solid hydroxylamine is brought into contact with solid potassium permanganate, there is produced immediately a with flame. Potassium permanganate decomposes hydrogen trisulphide so rapidly that sufficient heat is liberated to ignite the trisulphide. When Antimony or arsenic and solid potassium permanganate are ground together, the metals ignite.

Special Remarks on Explosion Hazards:

Take care in handling as explosions may occur if it is brought in contact with organic or other readily oxidisable substances, either in solution or in dry state. Explosive in contact with sulphuric acid or hydrogen peroxide. Potassium permanganate + acetic acid or acetic anhydride can explode if permanganate is not kept cold. Explosions can occur when permanganates come on contact with benzene, carbon disulphide, diethyl ether, ethyl alcohol, petroleum, or organic matter. Contact with glycerol

may produce explosion. Crystals of potassium permanganate explode vigorously when ground with phosphorous. A mixture of .5% potassium permanganate + ammonium nitrate explosive caused an explosion 7 hrs. later. Addition of Potassium permanganate + dimethylformamide to give a 20% solution led to an explosion after 5 min. During a preparation of chlorine by addition of the concentrated acid (Hydrochloric acid) to solid potassium permanganate, a sharp explosion occurred on one occasion.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill: Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing etc). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dyke if needed. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions: Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material Keep away from direct sunlight or strong incandescent light. Do not breathe dust. Avoid shock and friction. In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes

Storage: Oxidizing materials should be stored in a separate safety storage cabinet or room.

Section 8: Exposure Controls and Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystals solid.)

Odour: Odorless. **Taste:** Sweetish, astringent

Molecular Weight: 158.03 g/mole

Colour: Dark Purple

pH (1% soln/water): Not Available

Boiling Point: Not available. **Melting Point:** Decomposes

Critical Temperature: Not available

Specific Gravity: 2.7 @ 15 C (Water = 1)

Vapour Pressure: Not applicable.

Vapour Density: 8.7(Air = 1)

Volatility: Not available.

Odour Threshold: Not available. **Water/Oil Dist. Coeff.:** Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water methanol and acetone

Solubility: Partially soluble in cold water, hot water. Soluble in acetone. Soluble in methanol. Soluble in Sulphuric Acid

Section 10: Stability and Reactivity

Stability: Unstable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:

Highly reactive with organic materials, metals, acids. Reactive with reducing agents, combustible materials

Corrosivity: Not available.

Special Remarks on Reactivity:

It is a powerful oxidizing agent. Incompatible with reducing agents, acids, formaldehyde, ammonium nitrate, dimethylformamide, glycerol, combustible materials, alcohols, arsenites, bromides, iodides, charcoal, organic substances, ferrous or mercurous salts, hypophosphites, hyposulphites, sulphites, peroxides, oxalates, ethylene glycol, Manganese salts in air oxidize the toxic sulphur dioxide to more toxic sulphur trioxide. Can react violently with most metal powders, ammonia, ammonium salts, phosphorous, many finely divided organic compounds (materials), flammable liquids, acids, sulphur.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur

Section 11: Toxicological Data

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:

LD50: Not available. LC50: Not available.

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. **MUTAGENIC EFFECTS:** Mutagenic for bacteria and/or yeast. May cause damage to the following organs: blood, kidneys, liver.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose LDL [Child] - Route: Oral; Dose: 99 mg/kg

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation. May be absorbed through skin Eyes: Causes eye irritation. Inhalation: Causes respiratory tract and mucous membrane irritation. It may be destructive to the tissues of the mucous liver. Symptoms of acute poisoning may include ulceration and corrosion, epigastric pain, nausea, vomiting, diarrhea, vertigo, fever, muscle cramps, hemorrhagic diathesis, toxic nephritis, renal failure, intravascular hemolysis, circulatory collapse, liver damage, peripheral vascular collapse, acute multisystem shock and coma, and even death depending on the dose. **Chronic Potential Health Effects:** Chronic poisoning usually results from inhalation or skin contact. May affect the blood, kidneys and liver. Signs and symptoms may include lacrimation, dermatitis, penetrating ulcers, perforation of nasal septum, pulmonary edema, congestion, chronic rhinitis, polyps of the upper respiratory tract, inflammation of the lung, emphysema, tracheitis, bronchitis, pharyngitis, adhesions of the diaphragm, inflammation of larynx, conjunctivitis, loss of appetite, nausea, vomiting, inflammation of liver or even acute hepatitis with jaundice, respiratory irritations, leukocytosis, leukopenia, monocytosis, and eosinophilia.

Section 12: Ecological Data

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD50): 1090 mg/kg [Rat]. Lowest Published Lethal Dose: LDL[Woman] - Route: Oral; Dose: 100 mg/kg
LDL[Human] - Route: Oral; Dose: 143 mg/kg.

Chronic Effects on Humans:

MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, skin, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of eye contact (corrosive), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (Male and Female fertility) based on animal data. May affect genetic material (mutagenetic) based on animal data.

Special Remarks on other Toxic Effects on Humans: Not Available

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with local environmental control regulations.

Section 14: Transport

DOT Classification: CLASS 5.1: Oxidizing material.

Identification: Potassium Permanganate UNNA: 1490 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Information

References: Not available. **Other Special Considerations:** Not available.

Created: 23rd January 2013

Last Updated: 25th April 2014

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Laboratory Chemicals be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Laboratory Chemicals has been advised of the possibility of such damages