Chemical Safety Data Sheet MSDS / SDS

Potassium permanganate SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Potassium permanganate

CAS: 7722-64-7

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Oxidizing solids, Category 2
Acute toxicity - Category 4, Oral

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1
Reproductive toxicity, Category 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H272 May intensify fire; oxidizer
H302 Harmful if swallowed
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention

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.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P203 Obtain, read and follow all safety instructions before use.

Response

P370+P378 In case of fire: Use ... to extinguish.
P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P391 Collect spillage.
P318 IF exposed or concerned, get medical advice.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Potassium permanganate
Common names and synonyms:	Potassium permanganate
CAS number:	7722-64-7
EC number:	231-760-3
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air. Half-upright position. Artificial respiration may be needed. Refer immediately for medical attention.

Following skin contact

Wear protective gloves when administering first aid. First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

Following eye contact

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.

Following ingestion

Rinse mouth. If within a few minutes after ingestion, one small glass of water may be given to drink. Do NOT induce vomiting. Refer immediately for medical attention.

Most important symptoms/effects, acute and delayed

Burns and stains the skin dark brown. If ingested will cause severe distress of gastro-intestinal system. May be fatal if over 4 oz. are consumed. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Following ingestion of tablets, gastric lavage & supervision on surgical unit is proposed. operation should be conservative if digestive perforation is present, although it is extremely rare.

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Flood with water. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

Specific hazards arising from the chemical

Behavior in Fire: May cause fire on contact with combustibles. Containers may explode. (USCG, 1999)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT absorb in saw-dust or other combustible absorbents.

Methods and materials for containment and cleaning up

Environmental considerations: Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water. Add sodium bisulfite (NaHSO3).

SECTION 7: Handling and storage

Precautions for safe handling

NO contact with combustible substances. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from combustible substances, reducing agents and powdered metals. Well closed. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: (as Mn): 0.2 mg/m3, as TWA.EU-OEL: (as Mn, inhalable fraction): 0.2 mg/m3 as TWA.EU-OEL: (as Mn, respirable fraction): 0.05 mg/m3 as TWA.MAK: (as Mn, inhalable fraction): 0.2 mg/m3; (as Mn, respirable fraction): 0.02 mg/m3; peak limitation category: II(1); pregnancy risk group: C; (DFG 2016)

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Avoid inhalation of dust. Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Potassium permanganate is a purplish colored crystalline solid. Noncombustible but accelerates the burning of combustible material. If the combustible material is finely divided the mixture may be explosive. Contact with liquid combustible materials may result in spontaneous ignition. Contact with sulfuric acid may cause fire or explosion. Used to make other chemicals and as a disinfectant.
Colour:	Dark purple or bronze-like crystals; Almost opaque by transmitted light and of a blue metallic luster by reflected air.
Odour:	Odorless
Melting point/freezing point:	240°C
Boiling point or initial boiling point and boiling range:	no data available
Flammability:	Not combustible but enhances combustion of other substances. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available

Auto-ignition temperature:	Not flammable (USCG, 1999)
Decomposition temperature:	240°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	Soluble in many organic solvents; also by concentrated acids with the liberation of oxygen.
Partition coefficient n-octanol/water:	1.73 (calculated)
Vapour pressure:	at 20°C: negligible
Density and/or relative density:	1.01g/mLat 25°C
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

500 mg/cu m Manganese compounds and fume (as Mn)
Decomposes on heating. This produces toxic gases and irritating fumes. The substance is a strong oxidant. It reacts with combustible and reducing materials. This generates fire and explosion hazard. Reacts violently with powdered metals. This generates fire hazard.

Chemical stability

Stable in air and light; soln are unstable

Possibility of hazardous reactions

MODERATE, BY CHEMICAL REACTION.POTASSIUM PERMANGANATE is a very powerful oxidizing agent, particularly in acidic

surroundings. Reacts with incandescence with aluminum carbide [Mellor 5:872. 1946-47]. Grinding with antimony or arsenic causes ignition of the metals [Mellor 12:322. 1946-47]. Mixtures with acetic acid or acetic anhydride may explode if not kept cold [Von Schwartz 1918. p. 34]. Explosions can occur when acidified solutions come in contact with benzene, carbon disulfide, diethyl ether, ethyl alcohol, petroleum, or organic matter. Contact with glycerol may produce an explosion [Pieters 1957. p. 30]. Contact with concentrated hydrogen peroxide solution can produce an explosion [Haz. Chem. Data 1973. p. 230]. Contact with solid hydroxylamine produces an immediate white flame [Mellor 8:294. 1946-47]. Transport through a polypropylene tube ignited the tube [MCA Case History 1842. 1972]. Mixing with concentrated sulfuric acid in a vessel containing moisture caused an explosion (due to formation of manganese heptoxide) [Delhez 1967].

Conditions to avoid

no data available

Incompatible materials

Caution: take great care in handling as explosions may occur if it is brought into contact with org or other readily oxidizable substances, either in soln or in dry state.

Hazardous decomposition products

Decomp at about 240 deg c with evolution of oxygen; decomp by alcohol & many other org solvents, also by concn acids with liberation of oxygen; with hydrochloric acid, chlorine liberated; readily decomp by many reducing substances, such as ferrous salts, iodides, oxalates, etc, esp in presence of an acid

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Guinea pig oral 810 mg/kg.

Inhalation: no data available

Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of dust may cause lung oedema, but only after initial corrosive effects on eyes and/or airways have become manifest. The effects may be delayed. Medical observation is indicated.

STOT-repeated exposure

The substance may have effects on the lungs. This may result in bronchitis and pneumonia. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LD50 Lepomis macrochirus (bluegill sunfish) 2.7-3.6 mg/l /Conditions of bioassay not specified

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN1490 (For reference only, please check.)
IMDG: UN1490 (For reference only, please check.)
IATA: UN1490 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: POTASSIUM PERMANGANATE (For reference only, please check.)
IMDG: POTASSIUM PERMANGANATE (For reference only, please check.)
IATA: POTASSIUM PERMANGANATE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 5.1 (For reference only, please check.)
IMDG: 5.1 (For reference only, please check.)
IATA: 5.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)
IMDG: II (For reference only, please check.)
IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

Rinse contaminated clothing with plenty of water because of fire hazard.