SAFETY DATA SHEET

POTASSIUM PER MANGANATE

CAS No.: 7722-64-7

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

POTASSIUM PERMANGANATE
Potassium Per Manganate; Condy's Crystals; Chameleon Mineral
CAS: 7722-64-7

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Oxidizing agent and disinfectant for water treatment (iron/manganese removal, taste and odour control), industrial oxidation processes, and as a laboratory reagent. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Ox. Sol. 2	Oxidizing solid, Category 2, H272
Acute Tox. 4	Acute oral toxicity, Category 4, H302
Eye Dam. 1	Serious eye damage, Category 1, H318
STOT RE 2	Specific target organ toxicity, repeated exposure, Category 2, H373 (respiratory tract, via inhalation)
Aquatic Acute 1	Hazardous to the aquatic environment, acute hazard, Category 1, H400

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

Ox. Sol. 2: H272 – May intensify fire; oxidizer.
Acute Tox. 4: H302 – Harmful if swallowed.
Eye Dam. 1: H318 – Causes serious eye damage.
STOT RE 2: H373 – May cause damage to organs (respiratory tract) through prolonged or repeated exposure by inhalation.
Aquatic Acute 1: H400 – Very toxic to aquatic life.

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.
P221: Take any precaution to avoid mixing with combustibles.
P260: Do not breathe dust.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER/doctor (for eye contact).
P314: Get medical advice/attention if you feel unwell.
P391: Collect spillage.
P501: Dispose of contents/container in accordance with local regulations on hazardous waste.

Other hazards which do not result in classification

Stains skin, clothing and surfaces dark brown/purple on contact. Contact with glycerol, concentrated acids or readily oxidizable organic materials may cause fire or violent reaction.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Potassium Permanganate

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7722-64-7	Potassium permanganate – Ox. Sol. 2: H272; Acute Tox. 4: H302; Eye Dam. 1: H318; STOT RE 2: H373; Aquatic Acute 1: H400	≥99% (technical grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures	Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation

Remove the person affected from the area of exposure, provide fresh air and keep at rest. Seek medical attention if breathing difficulty occurs.

By skin contact

Remove contaminated clothing. Wash skin thoroughly with plenty of water and soap. Note: product will stain the skin brown – this is not necessarily indicative of a chemical burn but the area should still be assessed. Seek medical attention if irritation/burn is suspected.

By eye contact

Rinse eyes thoroughly with lukewarm water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention – may cause serious eye damage.

By ingestion/aspiration

Rinse mouth with water. Do not induce vomiting. Give water to drink if the person is conscious. Seek immediate medical attention/call a poison centre – concentrated solutions/crystals may cause burns to the mouth, throat and stomach.

Most important symptoms/effects, acute and delayed

Eye damage, skin staining/irritation, gastrointestinal irritation/burns if swallowed. Repeated inhalation exposure may affect the respiratory tract. See sections 2 and 11.

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

Treat symptomatically. Endoscopy may be indicated after significant ingestion, per physician's assessment.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Flood with large quantities of water.
Unsuitable: Dry chemical, foam, or agents intended to smother/exclude oxygen – not effective against an oxidizer-fed fire.

Specific hazards arising from the chemical

Strong oxidizer. Contact with combustible materials, concentrated acids, glycerol, or other readily oxidizable organic substances can cause fire or violent/explosive reaction. Decomposes on strong heating, releasing oxygen (intensifies fire) and oxides of manganese.

Special protective actions for fire-fighters

Evacuate the area. Wear self-contained breathing apparatus and full protective clothing. Use large quantities of water to cool containers and dilute the material.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Avoid contact with skin, eyes and clothing. Avoid raising dust. Use PPE per Section 8.

For emergency responders

Wear full protective equipment. Keep unprotected persons away.

Environmental precautions

Prevent entry into drains, watercourses and soil – very toxic to aquatic life. Notify relevant authorities in case of significant release.

Methods and materials for containment and cleaning up

Sweep up carefully using clean, dry, non-combustible tools and place in a suitable labelled container. Avoid contact with combustible materials during cleanup. Flush residual staining with plenty of water (small quantities only, per local discharge regulations).

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Keep away from combustible/organic materials, glycerol, concentrated acids and reducing agents. Use clean, dry equipment.

B. Technical recommendations for the prevention of fires and explosions

Store away from heat and ignition sources; segregate from all incompatible materials (Section 10.5).

C. Technical recommendations on general occupational hygiene

Do not eat, drink or smoke while handling. Wash hands thoroughly after handling – avoid transferring stains to face/eyes.

D. Technical recommendations to prevent environmental risks

Prevent product from entering drains or watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C
Maximum Temp.	30°C
Maximum time (unopened, original packaging)	24 Months

B. General conditions for storage

Store in a cool, dry, well-ventilated area away from direct sunlight, heat sources and all incompatible materials. Keep containers tightly closed.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948:

Identification	Occupational Exposure Limit Type	Value
Manganese compounds (as Mn), incl. potassium permanganate CAS: 7722-64-7	Time Weighted average concentration (8 hrs), respirable fraction	0.02 mg/m³ (as Mn, reference ACGIH-type guidance)
	Time Weighted average concentration (8 hrs), inhalable fraction	0.1 mg/m³ (as Mn, reference ACGIH-type guidance)

Appropriate engineering controls

Use local exhaust ventilation where dust is generated. Consult manufacturer's leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection

Dust mask/filtering half-mask (FFP2 or equivalent) where dust generation is possible.

C. Specific protection for the hands

Chemical-resistant gloves (nitrile or PVC).

D. Eye and face protection

Chemical splash goggles.

E. Bodily protection

Standard work clothing/coveralls; apron for bulk handling.

F. Additional emergency measures

Emergency shower and eyewash station should be available.

Environmental exposure controls

Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Solid (crystals/granules)
Appearance	Free-flowing crystals with metallic sheen
Color	Dark purple to purple-black
Odor	Odorless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Non-applicable (decomposes before boiling)
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	Approx. 2.7 g/cm³
Dynamic / Kinematic viscosity	Non-applicable (solid)
Concentration	≥99% KMnO4
pH (5% aqueous solution)	Approx. 7–8 (neutral)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not relevant (inorganic salt)
Solubility in water at 20°C	Soluble (approx. 6.4 g/100 mL at 20°C), forms intense purple/pink solution
Decomposition temperature	Approx. 240°C (decomposes, releasing oxygen)
Melting point/freezing point	Decomposes at approx. 240°C rather than melting
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-combustible itself but a strong oxidizer – intensifies combustion of other materials
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Available on request (crystal/granular grade dependent)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive by itself; may react violently/explosively with incompatible materials (Section 10.5)
Oxidising properties	Strong oxidizer – Ox. Sol. 2
Corrosive to metals	Not classified as corrosive to metals
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity

Strong oxidizer. Reacts violently with glycerol, concentrated sulfuric acid, hydrogen peroxide, reducing agents and many organic/combustible materials.

Chemical stability

Stable under recommended storage conditions. Decomposes on strong heating (>240°C) or contact with incompatible materials.

Possibility of hazardous reactions

Contact with glycerol, concentrated acids or other readily oxidizable organic materials can cause a rapid, self-sustaining exothermic reaction and may result in fire or explosion.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Avoid friction/impact with contaminants present	Not applicable	Danger of decomposition above 240°C	Not applicable	Not applicable (stable in normal humidity)

Incompatible materials

Glycerol / Organic Materials	Concentrated Acids	Reducing Agents / Hydrogen Peroxide	Combustible Materials
Violent/explosive reaction	Violent reaction	Violent reaction	Fire risk

Hazardous decomposition products

Oxygen and oxides of manganese (e.g. manganese dioxide) on strong heating.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)

Harmful if swallowed. Concentrated crystals/solution may cause corrosive burns to the mouth, throat and gastrointestinal tract.

B. Inhalation (acute effect)

Dust may cause irritation of the respiratory tract.

C. Contact with skin and eyes (acute effect)

Causes serious eye damage. May cause skin irritation and staining; concentrated contact may cause burns.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure

STOT RE 2, H373 (respiratory tract) – prolonged/repeated inhalation of manganese-containing dust is associated with manganese-related health effects on the respiratory and, at high occupational exposures, nervous system, consistent with general manganese compound toxicology.

H. Aspiration hazard

Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Potassium permanganate CAS: 7722-64-7	LD50 oral: 750 mg/kg (approx.)	Rat
	LD50 dermal: >2000 mg/kg (no reliable data indicating significant dermal toxicity)	Rabbit

12. ECOLOGICAL INFORMATION

Very toxic to aquatic life.

Toxicity

Acute Toxicity	Species	Genus
LC50: 2.3–3.5 mg/L (96h)	Non-applicable	Fish (rainbow trout, class data)
EC50: ≈2.3 mg/L (48h)	Non-applicable	Crustacean (Daphnia magna)

Persistence and degradability

Rapidly reacts/decomposes in the aquatic environment as it oxidizes organic matter, reducing to manganese dioxide.

Bioaccumulative potential

Not expected to bioaccumulate significantly.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Soluble/mobile	Reacts, reduces to insoluble MnO2

Results of PBT and vPvB assessment

Non-applicable (inorganic substance)

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Small quantities may be reduced/neutralized (e.g. with sodium bisulfite or similar reducing agent under controlled conditions) and, after complete reaction, disposed of per local effluent regulations; larger quantities should be handled by a licensed hazardous waste contractor. Do not mix with other chemicals.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	UN1490
14.2 UN proper shipping name	POTASSIUM PERMANGANATE
14.3 Transport hazard class(es)	5.1
14.4 Packing group	II
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	UN1490
14.2 UN proper shipping name	POTASSIUM PERMANGANATE
14.3 Transport hazard class(es)	5.1
14.4 Packing group	II
14.5 Marine pollutant	Yes
14.6 Special precautions for user	EmS Codes: F-A, S-Q
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	UN1490
14.2 UN proper shipping name	POTASSIUM PERMANGANATE
14.3 Transport hazard class(es)	5.1
14.4 Packing group	II
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Consult current IATA regulations for packing instruction limits
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

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

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (India)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H272: May intensify fire; oxidizer.
H302: Harmful if swallowed.
H318: Causes serious eye damage.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and physicochemical reference data for potassium permanganate (CAS 7722-64-7).

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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