




**MATERIAL SAFETY DATA SHEET****Sodium Permanganate solution****1: Company and Product Identification**

Chemical Product	Sodium Permanganate
Trade Name	Sodium Permanganate 20% Sodium Permanganate 40%
Synonym	NaMnO ₄ Permanganic acid of Sodium Salt
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2: Hazards Identification

- 1. EYE CONTACT** - Sodium Permanganate is damaging to eye tissue on contact. It may cause burns that result in damage to the eye.
- 2. SKIN CONTACT** - Momentary contact of solution at room temperature may be irritating to the skin, leaving brown stains. Prolonged contact is damaging to the skin.
- 3. INHALATION** - Acute inhalation toxicity data are not available. However, airborne concentrations of sodium permanganate in the form of mist may cause irritation to the respiratory tract.
- 4. INGESTION** - Sodium permanganate solution, if swallowed, may cause burns to mucous membranes of the mouth, throat, oesophagus, and stomach.

3: Hazard Description & Symbols

MATERIAL	CAS NO.	EINECS	%	HAZARD DATA
Sodium Permanganate	10101-50-5	233-251-1	20-40	PEL/C 5 mg Mn per cubic meter of air TLV-TWA 0.2 mg Mn per cubic meter of air
SYMBOLS:				
				
Oxidizing Chemical	Irritant	Environmental Hazard		
RISK PHRASES:				
8 - Contact with combustibles may cause fire.				
22 - Harmful if swallowed.				
50/53 - Very toxic to aquatic organisms, may cause long-term effects in the aquatic environment.				
SAFETY PHRASES:				
17 - Keep away from combustible materials.				
24/25 - Avoid contact with skin and eyes.				
26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.				



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4: First Aid Measures

- 1. EYES** - Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Do not attempt to neutralize chemically. Seek medical attention immediately. Note to physician: Decomposition products are alkaline. Brown stain formed is insoluble manganese dioxide.
- 2. SKIN** - Immediately wash contaminated areas with water. Remove contaminated clothing and footwear. (Caution: Solution may ignite certain textiles). Wash clothing and decontaminate footwear before reuse. Seek medical attention if irritation is severe or persistent.
- 3. INHALATION** - Remove person from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. Seek medical attention immediately.
- 4. INGESTION** - Never give anything by mouth to an unconscious or convulsing person. If person is conscious, give large quantities of water or milk. Seek medical attention immediately.

5: Fire Fighting Measures

HAZARD SIGNS

- Health Hazard 1 = Materials which under fire conditions would give off irritating Combustion products. (less than 1 hour exposure) Materials that on the skin could cause irritation.
- Flammability Hazard 0 = Materials that will not burn.
- Reactivity Hazard 0 = Materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.
- Special Hazard OX = Oxidizer

FIRST RESPONDERS: Wear protective gloves, boots, goggles, and respirator. In case of fire, wear positive pressure breathing apparatus. Approach incident with caution.

EXTINGUISHING MEDIA: Use large quantities of water. Water will turn pink to purple if in contact with sodium permanganate. Do not use dry chemicals, CO₂ or foams.

SPECIAL FIREFIGHTING PROCEDURES: If material is involved in fire, flood with water. Cool all affected containers with large quantities of water. Apply water from as far a distance as possible. Wear self-contained breathing apparatus and full protective clothing.

UNUSUAL FIRE AND EXPLOSION: Powerful oxidizing material. May decompose spontaneously if exposed to heat (135°C / 275°F). May be explosive in contact with certain other chemicals (Section 10). May react violently with finely divided readily oxidizable substances. Increases burning rate of combustible material. May ignite wood and cloth

6: Accidental Release Measures

PERSONAL PRECAUTIONS:

Personnel should wear protective clothing suitable for the task. Remove all ignition sources and incompatible materials before attempting clean up.

ENVIRONMENTAL PRECAUTIONS:

Do not flush into sanitary sewer system or surface water. If accidental release into the environment occurs, inform the responsible authorities. Keep the product away from drains, sewers, surface and ground water and soil.

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Contain spill by collecting the liquid in a pit or holding behind a dam (sand or soil). Dilute to approximately 6% with water, and then reduce with sodium thiosulfate, a bisulfite or ferrous salt solution. The bisulfite or ferrous salt may require some dilute sulfuric acid (10% w/w) to promote reduction. Neutralize with sodium carbonate to neutral pH, if acid was used. Decant or filter and deposit sludge in approved landfill. Where permitted, the sludge may be drained into sewer with large quantities of water. To clean contaminated floors, flush with abundant quantities of water into sewer, if permitted by federal, state, and local regulations. If not, collect water and treat as above.



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7: Handling & Storage

WORK/HYGIENIC PRACTICES

Wash hands thoroughly with soap and water after handling permanganate solution. Do not eat, drink or smoke when working with sodium permanganate. Wear proper protective equipment. Remove clothing, if it becomes contaminated.

VENTILATION REQUIREMENTS

Provide sufficient mechanical and/or local exhaust to maintain exposure below the TLV/TWA.

CONDITIONS FOR SAFE STORAGE

Store in accordance with requirements for Class II oxidizers. Protect containers from physical damage. Store in a cool, dry area in closed containers. Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidizing materials including antifreeze and hydraulic fluid.

8: Exposure Control & Personal Protection

RESPIRATORY PROTECTION

In cases where overexposure to mist may occur, the use of an approved mist respirator or an air supplied respirator is advised. Engineering or administrative controls should be implemented to control mist.

EYE

Face-shield, goggles, or safety glasses with side shields should be worn. Provide eyewash in working area.

GLOVES

Rubber or plastic gloves should be worn.

OTHER PROTECTIVE EQUIPMENT

Chemically resistant clothing covering arms and legs, and rubber, or plastic apron should be worn. Caution: If clothing becomes contaminated, wash off immediately. Spontaneous ignition may occur with cloth or paper.

9: Toxicological Information

SODIUM PERMANGANATE: Acute oral LD50 not known.

1. ACUTE TOXICITY

Irritating to body tissue with which it comes into contact. No acute toxicity data is available for sodium permanganate. Toxicity is expected to be similar to that of potassium permanganate. The toxicity data for potassium permanganate is given below:

INGESTION:

LD 50 oral rat: 780 mg/kg male (14 days); 525 mg/kg female (14 days). Harmful if swallowed. ALD: 10g. Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine. Liver and kidney injuries may occur.

SKIN CONTACT:

LD 50 dermal no data available. Major effects of exposure: severe irritation, brown staining of skin.

INHALATION:

LC 50 inhale. No data available. The product may be absorbed into the body by inhalation. Major effects of exposure: respiratory disorder, cough.

2. CHRONIC TOXICITY

No known cases of chronic poisoning due to permanganates have been reported. Prolonged exposure, usually over many years, to heavy concentrations of manganese oxides in the form of dust and fumes may lead to chronic manganese poisoning, chiefly involving the central nervous system.

3. CARCINOGENICITY

Sodium permanganate has not been classified as a carcinogen by ACGIH, NIOSH, OSHA, NTP, or IARC.

4. MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Sodium permanganate solution will cause further irritation of tissue, open wounds, burns or mucous membrane



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10: Physical and Chemicals properties

APPEARANCE	Dark reddish Purple Solution
BOILING POINT, 760 Mm Hg	>101°C
VAPOR PRESSURE (Mm Hg)	760 Mm At 105°C
SOLUBILITY IN WATER % BY SOLUTION	Miscible In All Proportions With Water
PERCENT VOLATILE BY VOLUME	61-85% (As Water)
EVAPORATION RATE	Same As Water
FREEZING POINT	<-4.0 °C
SPECIFIC GRAVITY	1.15 - 1.38
Ph	6-8

11: Stability & Reactivity

STABILITY Under normal conditions, the material is stable.
CONDITIONS TO AVOID Contact with incompatible materials or heat (135°C / 275°F) could result in violent exothermic chemical reaction.
INCOMPATIBLE MATERIALS Acids, peroxides, and all combustible organic or readily oxidizable materials including inorganic oxidizable materials and metal powders. With hydrochloric acid, chlorine gas is liberated.
HAZARDOUS DECOMPOSITION PRODUCTS When involved in a fire, sodium permanganate may form corrosive fumes.
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION Material is not known to polymerize.

12: Transportation Information

Proper Shipping Name: Permanganates, inorganic, aqueous solution (contains sodium permanganate)
Hazard Class: Oxidizer
ID Number: UN 3214
Packing Group: II
Division: 5.1
Marine Pollutant: No

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