

# SODIUM PERMANGANATE

## SAFETY DATA SHEET

Reviewed on 6/26/2015

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name: Sodium permanganate  
Description: 40% minimum as NaMnO<sub>4</sub>

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

Identified uses: Oxidation of organic compounds for remediation

#### 1.3 Details of the supplier of the safety data sheet

Company: Hepure Technologies, Inc.  
63 Main Street, Suite 203B  
Flemington, NJ 08822  
Phone: 877-727-4776

#### 1.4 Emergency telephone number

Emergency Phone #: CHEMTREC 1-800-424-9300

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Oxidizing liquids (Category 2), H272  
Acute toxicity, Oral (Category 4), H302  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Specific target organ toxicity, single exposure (Category 3, Respiratory Tract irritation)  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410  
For the full text of the H-Statements mentioned in this Section, see Section 16.

#### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word	Danger
<b>Hazard statement(s)</b>	
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H410	Very toxic to aquatic life with long lasting effects.
<b>Precautionary statement(s)</b>	
P210	Keep away from heat.
P220	Keep/store away from clothing/combustible materials.
P221	Take any precaution to avoid mixing with combustibles.
P264	Wash skin 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 or doctor/ physician if you feel unwell.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all Contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a Position comfortable for breathing.
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 or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none**

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.2 Mixtures

Formula:  $MnNaO_4$   
 Molecular weight : 141.93 g/mol  
 Hazardous components:

Component	Classification	Concentration
Sodium Permanganate		
CAS-No. 10101 -50-5 EC-No. 233-251 -1	Ox. Sol. 2; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1 ; Aquatic Acute 1 ; Aquatic Chronic 1 ; H272, H302, H314, H410	>=36-40%

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

##### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

##### \*Physicians Note

Decomposition products are alkaline

#### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

#### 4.3 Indication of any immediate medical attention and special treatment needed

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

Use large amounts of water. Dike to contain.

DO NOT USE dry chemicals, foams

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

Sodium oxides, Manganese/manganese oxides

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting.

### 5.4 Further information

Use water spray to cool unopened containers.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Contain spill by collecting the liquid in a pit or holding behind a dam. Dilute to approx. 6% solution with water and then reduce with sodium thiosulfate, a bisulfite, or ferrous salt solution. Flush with abundant water into the sewer if permitted by federal, state, and local authorities. If not, collect and treat as above.

### 6.4 Reference to other sections

For disposal see section 13.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling



Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Segregate from acids, peroxides, formaldehyde, and all combustible, organic, or easily oxidized materials.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Sodium permanganate	10101 -50-5	C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Ceiling limit is to be determined from breathing-zone air samples.		
	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)	
	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies			
	TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits	
	ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits	
	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)	
	Central Nervous System impairment 2014 Adoption			

	varies		
	TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment 2014 Adoption varies		
	TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment varies		
	TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Central Nervous System impairment varies		

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.  
Discharge into the environment must be avoided.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance Form:	Purple liquid
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	6-9
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	100 °C (212 °F)
g) Flash point	>105 degrees C
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	760 mm @ 105 degrees C
l) Vapor density	No data available
m) Relative density	1.391 g/cm <sup>3</sup>
n) Water solubility	Complete solubility in all proportions
o) Partition coefficient: noctanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not explosive. Can explode in contact with sulfuric acid, peroxides, and metal powders.
t) Oxidizing properties	Strong oxidizing agent.

### 9.2 Other safety information

No data available

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions



No data available

**10.4 Conditions to avoid**

No data available

**10.5 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.

**10.6 Hazardous decomposition products**

Other decomposition products - No data available

In the event of fire: see section 5; when involved in a fire, sodium permanganate may form corrosive fumes.

## 11. TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

Acute toxicity	No data available
Inhalation	No data available
Dermal	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity	No data available
Specific target organ toxicity – single exposure	No data available
Specific target organ toxicity –	



repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence (Sodium permanganate)

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

## 13. DISPOSAL CONSIDERATIONS

## 13.1 Waste treatment methods

### Product

When it becomes a waste, sodium permanganate is considered a D001 hazardous (ignitable) waste. For disposal of sodium permanganate solutions, follow procedures in Section 6 and deactivate the permanganate to insoluble manganese dioxide. Dispose of it in a permitted landfill. Contact Hepure Technologies, Inc for additional recommendations.

### Contaminated packaging

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 3214      Class: 5.1      Packing group: II  
Proper shipping name: 49 CFR172.101 Permanganates, inorganic, aqueous solution, n.o.s. (Sodium permanganate)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No  
DOT Hazard Class:      49 CFR172.101      5.1  
Hazard Class:      49 CFR172.101      Oxidizer

### IMDG

UN number: 3214      Class: 5.1      Packing group: II EMS-No: F-H, S-Q  
Proper shipping name: PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (Sodium permanganate)  
Marine pollutant: yes

### IATA

UN number: 3214      Class: 5.1      Packing group: II  
Proper shipping name: Permanganates, inorganic, aqueous solution, n.o.s. (Sodium permanganate)

## 15. REGULATORY INFORMATION

### Toxic Substances Control Act (TSCA)

All components of this product are listed in the Toxic Substances Control Act Inventory

### Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):

Reportable Quantity - \* pounds (RCRA hazardous waste)



### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 311 Components

Acute Health	Yes
Chronic Health	Yes
Fire	Yes
Sudden Release of Pressure	No
Reactive	No

### SARA 311 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 311.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Sodium permanganate	10101 -50-5	2007-07-01

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium permanganate	10101 -50-5	2007-07-01

### New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Sodium permanganate	10101 -50-5	2007-07-01

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity



Eye Dam.	Serious eye damage
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Ox. Sol.	Oxidizing solids
Skin Corr.	Skin corrosion

**HMIS Rating**

Health:	1
Flammability:	0
Physical Hazard:	0
Protective Equipment:	D

**NFPA Rating**

Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0
Special hazard:	OX

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Hepure Technologies, Inc. and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.