

## GHS Safety Data Sheet

SDS No. : MNO05PAEG

Date Issued : 2009/05/18

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### Section 1. Identification of the substance or mixture and of the supplier

#### Product Information

Product name: Mn<sub>3</sub>O<sub>4</sub> Trimanganese(II,III) tetraoxide

Product number:	Purity	Form	Size or Shape (mm)
MNO05PB	99.9%(3N)	powder	—
—	99.9%(3N)	tablet/target	Various shapes, Various sizes

#### Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

1-28, 5-chome, Chiyoda, Sakado-shi, Saitama Japan 350-0284

Phone: +81-49-284-1511 Fax: +81-49-284-1351

Emergency Phone : +81-49-284-1511

**Recommended uses and restrictions on use:** For research purposes

### Section 2. Hazards identification

#### GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
<b>Skin corrosion/irritation : Category 2</b> <b>Serious eye damage/eye irritation : Category 2</b> <b>Specific target organ toxicity, single exposure: Category 3</b>	No data available	<b>Flammable solids : Not classified</b> <b>Pyrophoric solids : Not classified</b> <b>Self-heating substances and mixtures : Not classified</b> <b>Substances and mixtures which, in contact with water, emit flammable gases : Not classified</b>

GHS Label:



Pictograms or symbols:

Warning word: **WARNING**

Hazard information	Description of precaution
<b>Causes skin irritation</b> <b>Causes serious eye irritation</b> <b>May cause respiratory irritation</b>	Wear protective gloves/protective clothing/eye protection/respiratory protection /face protection during handling. Avoid breathing dust/mist/gas/fume/vapors/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Take off the contaminated clothing and wash before reuse. Use only outdoors or in well-ventilated area. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: Remove immediately all contaminated clothing and rinse skin with water/shower. Then wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. Protect from sunlight. Store in a cool, dry and well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/ container in accordance with local/national regulations.



High Purity Materials

**KOJUNDO CHEMICAL LABORATORY CO.,LTD.**

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### Section 3. Composition / information on ingredients

Chemical or common name:	Dimanganese(III) manganese(II) tetraoxide
Synonyms:	Trimanganese tetraoxide
Chemical formula:	Mn <sub>3</sub> O <sub>4</sub>
Single Substance or Compound:	Single substance
Composition:	100%
CAS #:	1317-35-7
RTECS#:	OP0895000
TSCA inventory :	Listed
EINECS:	2152665

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### Section 4. First aid measures

Eye contact:	Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
Skin contact:	Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
Inhalation:	Remove the exposed person immediately and provide fresh air. Get medical attention.
Ingestion:	Rinse mouth and throat with water. Get medical attention immediately.

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### Section 5. Fire fighting measures

Extinguishing media:	The product is not combustible. Use media appropriate for surrounding fire.
Fire fighting:	In case of fire, the product may liberate toxic fume or gases. Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire.

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### Section 6. Accidental release measures

Personal Precautions:	Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapor/dusts.
Environmental hazard precautions:	Shut off leak if without risk. Prevent flow out to river, etc. so as not to badly affect.
Method for containment and cleaning up:	Indoor leakage: Ventilate as much as possible until the cleaning is completed. Outdoor leakage: Work from the windward and evacuate the leeward crowd. Gather up, pack in closed DOT-approved waste container as much as possible. Carefully collect remnant and move to a safe place.

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### Section 7. Handling and storage

#### Precautions to be taken in handling:

Safe handling:	Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen. Avoid prolonged or repeated exposure.
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#### Precautions to be taken in storage:

General precautions:	Store the material in a sealed container. Store in a cool, dry, well ventilated and dark place away from incompatible materials.
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## Section 8. Exposure controls / personal protection

Exposure guideline:	Chemical Name	ACGIH(2024) TLV-TWA mg/m <sup>3</sup>	OSHA(2006) PEL-TWA mg/m <sup>3</sup>
	Manganese compounds (as Mn)	0.02(R),0.1(I)	5(C)

R : Respirable particulate, I : Inhalable particulate , C : Ceiling limit

Facility measures:	Local ventilation of closed work room or total proper ventilation to prevent inhalation.
Protective ware:	Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, protective gloves.

## Section 9. Physical and chemical properties

Appearance:	Black solid, odorless.
Chemical formula:	Mn <sub>3</sub> O <sub>4</sub>
Formula weight:	228.8
Melting point:	1564 °C
Density:	4.8 g/cm <sup>3</sup>
Solubility in water:	Insoluble
Flammability:	Non-combustible substance.
Oxidation:	Oxidizing agent

## Section10. Stability and reactivity

Stability:	Stable in closed container under room temperature.
Reactivity	
Incompatibility:	Reducing agents, combustible substances, hydrochloric acid

## Section11. Toxicological information

Acute toxicity(Oral):	GHS : No data available
Acute toxicity(dermal):	GHS : No data available
Skin corrosive / irritation:	GHS : Category 2 ; Causes skin irritation
Serious eye damage / irritation:	GHS : Category 2 ; Causes serious eye irritation
Respiratory sensitization:	GHS : No data available
Skin sensitization:	GHS : No data available
Germ cell mutagenicity:	GHS : No data available
Carcinogenicity:	GHS : No data available

Chemical Name	ACGIH (2024)	IARC (2024)	NTP (2021)
Manganese compounds (as Mn)	A4	—	—

ACGIH A4 : Not classifiable as a Human Carcinogen

Reproductive toxicity:	GHS : No data available
Specific target organ toxicity	
— single exposure:	GHS : Category 3 ; May cause respiratory irritation
— repeated exposure:	GHS : No data available
Aspiration hazard:	GHS : No data available

## Section12. Ecological information

Ecotoxicity:	
Hazardous to the aquatic environment	
— acute toxicity:	GHS : No data available



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— chronic toxicity:	GHS : No data available
Hazardous to the ozone layer	GHS : No data available No Freon or Halon
Fish toxicity:	No data available
Degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available

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### Section 13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

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### Section 14. Transport information

UN classification:	Not hazardous
UN number:	None
HS code:	2820.90
Marine pollution:	None
Precautions:	Container should be transported in a secure position, in a well-ventilated vehicle.

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### Section 15. Regulatory information

TSCA inventory: Listed.

Please refer to any other local / national measures that may be relevant.

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### Section 16. Other information

This SDS is for provision of information, and it does not represent a guarantee the properties or safeties of the product.

The information herein is based on the references we could obtained and the present state of our knowledge, however, this SDS does not always cover all information about the product. Some new information or amendments may be added afterwards.

Prior to use, please investigate the laws and regulations of the organization, area and country where the product is to be used. The information is intended to ordinary usage, in case of special handling, sufficient care should be taken.

