

## Safety Data Sheet

### 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Product name: Potassium permanganate

Reference number(SDS): 24165jis\_E-3

**Product type:**

Reagent

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

FAX: +81-48-989-2787

e-mail address: shiyaku-t@junsei.co.jp

### 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****PHYSICAL AND CHEMICAL HAZARDS**

Oxidizing solids: Category 2

**HEALTH HAZARDS**

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Germ cell mutagenicity: Category 2

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

Specific target organ toxicity – repeated exposure: Category 1 (nervous system, respiratory system)

**ENVIRONMENT HAZARDS**

Hazardous to the aquatic environment (Acute): Category 1

Hazardous to the aquatic environment (Long-term): Category 1

(Note) GHS classification without description: Not classified/Classification not possible

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

H272–May intensify fire; oxidizer

H302–Harmful if swallowed

H314–Causes severe skin burns and eye damage

H318–Causes serious eye damage

H341–Suspected of causing genetic defects

H361–Suspected of damaging fertility or the unborn child

H335–May cause respiratory irritation

H372–Causes damage to organs through prolonged or repeated exposure

H400–Very toxic to aquatic life

H410–Very toxic to aquatic life with long lasting effects

**PRECAUTIONARY STATEMENT****Prevention**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid release to the environment.
- Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- Keep/Store away from clothing/combustible materials.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Use only outdoors or in a well-ventilated area.
- Wash contaminated parts thoroughly after handling.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Use personal protective equipment as required.
- Do not eat, drink or smoke when using this product.

**Response**

- In case of fire: Use appropriate media other than water for extinction.
- Collect spillage.
- Get medical advice/attention if you feel unwell.
- IF exposed or concerned: Get medical advice/attention.
- Immediately call a POISON CENTER or doctor/physician.
- Call a POISON CENTER or doctor/physician if you feel unwell.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Wash contaminated clothing before reuse.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**Storage**

- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.

**Disposal**

- Dispose of contents/container in accordance with local/national regulation.

**Specific Physical and Chemical hazards**

- Oxidizing material. Organic or combustible material may catch fire in contact with it.

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**3. Composition/information on ingredients****Mixture/Substance selection:****Substance**

- Ingredient name: Potassium permanganate
- Content (%): 99.3 <
- Chemical formula:  $\text{KMnO}_4$
- Chemicals No, Japan: 1-446
- CAS No.: 7722-64-7
- MW: 158.03
- PRTR law No, Japan: 1-412
- ECNO: 231-760-3

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**4. First-aid measures****Descriptions of first-aid measures****General measures**

- Get medical attention/advice if you feel unwell.
- Immediately call a POISON CENTER or doctor/physician.

Keep victim warm and quiet.  
Call emergency medical service.

**IF INHALED**

Remove person to fresh air and keep comfortable for breathing.  
Give artificial respiration if victim is not breathing.  
Administer oxygen if breathing is difficult.  
Call a POISON CENTER or doctor/physician if you feel unwell.

**IF ON SKIN (or hair)**

Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If skin irritation or rash occurs: Get medical advice/attention.

**IF IN EYES**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.

**IF SWALLOWED**

Rinse mouth. Do NOT induce vomiting.  
If within a few minutes after ingestion, one small glass of water may be given to drink.  
Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Nausea. Abdominal pain. Diarrhoea. Cough. Burning sensation. Sore throat. Shortness of breath.  
Laboured breathing. Vomiting. Shock or collapse.  
✕When inhaling: Symptoms may be delayed.

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes. Redness of the skin. Pain. Severe burns.

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**5. Fire-fighting measures****Extinguishing media****Suitable extinguishing media**

Use appropriate extinguishing media suitable for surrounding facilities.  
Not combustible but enhances combustion of other substances.

**Unsuitable extinguishing media**

Dry chemicals. Foams.

**Specific hazards arising from the substance or mixture**

Containers may explode when heated.  
Fire may produce irritating, corrosive and/or toxic gases.  
Runoff from fire control or dilution water may cause pollution.

**Advice for firefighters****Specific fire-fighting measures**

Evacuate non-essential personnel to safe area.

**Special protective equipment and precautions for fire-fighters**

Wear fire/flame resistant/retardant clothing.  
Wear protective gloves/protective clothing/eye protection/face protection.  
Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

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**6. Accidental release measures****Personnel precautions, protective equipment and emergency procedures**

Keep unauthorized personnel away.  
In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.  
Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Runoff may create fire or explosion hazard.

Methods and materials for containment and cleaning up

With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.

Do NOT absorb in saw-dust or other combustible absorbents.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Keep out of low areas.

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## 7. Handling and storage

### Precautions for safe handling

#### Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

Keep/Store away from clothing/combustible materials.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

#### Safety Measures

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

May ignite combustibles (wood, paper, oil, clothing, etc.).

Contaminated clothing may be a fire risk when dry.

#### Any incompatibilities

Reducing agents, Powdered metals, Combustible substances should not be mixed with the chemicals.

#### Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wash contaminated clothing before reuse.

#### Storage

##### Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed.

Keep cool. Protect from sunlight.

Store locked up.

Container and packaging materials for safe handling data is not available.

#### Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See

Section 8 for exposure controls and personal protection recommendations.

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## 8. Exposure controls/personal protection

### Control parameters

#### Control value

Japan control value (2004)  $\leq 0.2\text{mg-Mn}/\text{m}^3$

#### Adopted value

JSOH(2008)  $0.2\text{mg-Mn}/\text{m}^3$

ACGIH(2012) TWA:  $0.02\text{mg-Mn}/\text{m}^3(\text{R})$ ;

TWA:  $0.1\text{mg-Mn}/\text{m}^3(\text{I})$  (CNS impair)

### Exposure controls

#### Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

#### Individual protection measures

##### Respiratory protection

Wear respiratory protection.

Wear positive pressure self-contained breathing apparatus (SCBA).

##### Hand protection

Wear protective gloves.

Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

##### Eye protection

Wear chemical safety goggle.

Wear eye/face protection.

##### Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

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## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

Physical state: Crystals

Color: Greenish black or purplish black

Odor: None

Odor threshold data is not available.

Melting point/Freezing point:  $240^{\circ}\text{C}$

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature:  $240^{\circ}\text{C}$

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: ca. 7~9 (20 g/L,  $20^{\circ}\text{C}$ )

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

#### Solubility:

Solubility in water: 6.4 g/100 ml ( $20^{\circ}\text{C}$ )

Solubility in solvent: Soluble in many organic solvents.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Vapor density data is not available.

VOC data is not available.

Evaporation rate data is not available.

Density and/or relative density: 2.70g/cm<sup>3</sup>(20°C)

Relative vapor density (Air=1) data is not available.

Relative density of the Vapor/air – mixture at 20°C (Air = 1) data is not available.

Critical temperature data is not available.

No Particle characteristics data is not available.

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## 10. Stability and Reactivity

### Reactivity

Runaway polymerization will not occur.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

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.

### Conditions to avoid

Contact with incompatible materials.

Heat.

### Incompatible materials

Reducing agents, Powdered metals Combustible substances

### Hazardous decomposition products

Metal oxides.

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=379mg/kg (NITE primary risk assessment, 2008)

Labor standard law, Japan; Toxic

Potassium permanganate

#### Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

highly corrosive (HSDB, Access on December 2014)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

highly corrosive (HSDB, Access on December 2014)

Allergenic and sensitizing effects data is not available.

#### Germ cell mutagenicity

[GHS Cat. Japan, base data]

cat. 2; CICAD 12, 1999

#### Carcinogenicity

ACGIH-A4(2012) : Not Classifiable as a Human Carcinogen (Inorganic Mn)

#### Reproductive toxicity

[GHS Cat. Japan, base data]

cat. 2; EHC 17, 1981; ATSDR, 2012

## STOT

STOT-single exposure

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

respiratory tract irritation (PATTY 6th, 2012)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

nervous system; respiratory system (NITE primary risk assessment, 2008; ATSDR, 2012)

Aspiration hazard data is not available.

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**12. Ecological Information**

Ecotoxicity

Aquatic toxicity

H400-Very toxic to aquatic life

H410-Very toxic to aquatic life with long lasting effects

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

Crustacea (Calanoida) LC50=0.185mg/L/96hr (0.0765mg-Mn/L)

(Risk Assessment for Chemical Substances Vol. 6 by MOE, 2008)

Water solubility

6.4 g/100 ml (20°C) (ICSC, 2003)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

BCF &lt; 81 (Registered chemicals data check &amp; review, Japan))

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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**13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment (- if this is not the intended use).

Dispose of contents/container in accordance with local/national regulation.

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**14. Transport Information**

UN No., UN CLASS

UN No. or ID No.: 1490

UN Proper Shipping Name : POTASSIUM PERMANGANATE

Class or division (Transport hazard class) : 5.1

Packing group : II

ERG GUIDE No.: 140

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1490

Proper Shipping Name :

POTASSIUM PERMANGANATE

Class or division : 5.1

Packing group : II

## IATA Dangerous Goods Regulations

UN No.: 1490  
Proper Shipping Name POTASSIUM PERMANGANATE  
Class or division : 5.1  
Hazard labels : Oxidizer  
Packing group : II

## Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : yes

MARPOL Annex V – Prevention of pollution by garbage discharge

Specific target organ toxicity – repeated exposure: cat.1

Potassium permanganate

Hazardous to the aquatic environment – acute hazard: cat.1

Potassium permanganate

Hazardous to the aquatic environment – long-term hazard: cat.1, 2

Potassium permanganate

## Maritime transport in bulk according to IMO instruments

Not applicable to Maritime transport in bulk according to IMO instruments

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**15. Regulatory Information**

Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemicals listed in TSCA Inventory

Potassium permanganate

## Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

## Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

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**16. Other information**

## GHS classification and labelling

H272–Ox. Sol. 2: H272 May intensify fire; oxidizer

H302–Acute Tox. 4: H302 Harmful if swallowed

H314–Skin Corr. 1: H314 Causes severe skin burns and eye damage

H318–Eye Dam. 1: H318 Causes serious eye damage

H341–Muta. 2: H341 Suspected of causing genetic defects

H361–Repr. 2: H361 Suspected of damaging fertility or the unborn child

H335–STOT SE 3: H335 May cause respiratory irritation

H372–STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

H400–Aquatic Acute 1: H400 Very toxic to aquatic life

H410–Aquatic Chronic 1: H410 Very toxic to aquatic life with long lasting effects

## Reference Book

Globally Harmonized System of classification and labelling of chemicals, (7th revised edition, 2017), UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN



IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (61th Edition) 2020

Classification, labelling and packaging of substances and mixtures (Table 3 ECNO6182012)

2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2020 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/ENG/Classification/index.php>

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2019 Recommendation on TLVs (JSOH)

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.10 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

([https://www.nite.go.jp/en/chem/chrip/chrip\\_search/systemTop](https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop))

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

#### Definitions and Abbreviations

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

#### General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2019).