

Manganese(IV) oxide, powder,
JUNSEI CHEMICAL CO., LTD.,53165jis_J_E1-3,15/03/2021

Date of issue for the 1st edition : 31/10/2013

Date of revision : 15/03/2021

Safety Data Sheet

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

Product identifier:

Product name: Manganese(IV) oxide, powder

Reference number(SDS):53165jis_J_E1-3

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

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

HEALTH HAZARDS

Germ cell mutagenicity: Category 2

Specific target organ toxicity – single exposure: Category 1(respiratory system)

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

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Long-term): Category 4

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

Label elements



Signal word: Danger

HAZARD STATEMENT

H341–Suspected of causing genetic defects

H370–Causes damage to organs after single exposure

H372–Causes damage to organs through prolonged or repeated exposure

H413–May cause long lasting harmful effects to aquatic life

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.

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

Wash contaminated parts thoroughly after handling.

Use personal protective equipment as required.

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

Response

Get medical advice/attention if you feel unwell.

Storage

Store locked up.

Manganese(IV) oxide, powder,
JUNSEI CHEMICAL CO., LTD.,53165jis_J_E1-3,15/03/2021

Disposal

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

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Common name, synonyms: Manganese dioxide, powder

Ingredient name:Manganese(IV) oxide

Content (%):75.0 <

Chemical formula:MnO₂

Chemicals No, Japan:1-475

CAS No.:1313-13-9

MW:86.94

ECNO:215-202-6

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

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.

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. Cough

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

Unsuitable extinguishing media data is not available.

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.

Manganese(IV) oxide, powder,

JUNSEI CHEMICAL CO., LTD., 53165jis_J_E1-3, 15/03/2021

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.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

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

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

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

If appropriate, moisten first to prevent dusting.

Preventive measures for secondary accident

Collect spillage.

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.

(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.

Wear protective gloves, protective clothing or face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Any incompatibilities

Reducing agents, 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.

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.

8. Exposure controls/personal protection

Control parameters

Control value

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

Adopted value

JSOH(2008) 0.2mg-Mn/m^3

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

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

Hand protection

Wear protective gloves.

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

Eye protection

Wear safety glasses with side-shields.

Wear eye/face protection.

Skin and body protection

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

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Powder

Color: Black~Brown

Odor: None

Odor threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

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

Flash point: Non-flammable

Auto-ignition temperature data is not available.

Decomposition temperature: 553°C

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

pH data is not available.

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Insoluble

Solubility in solvent data is not available.

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.

Manganese(IV) oxide, powder,

JUNSEI CHEMICAL CO., LTD., 53165jis_J_E1-3, 15/03/2021

Density and/or relative density: 5.0g/cm³

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.

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

The substance decomposes on heating above 553°C producing manganese(III) oxide and oxygen, which increases fire hazard.

The substance is a strong oxidant and reacts violently with combustible and reducing materials causing fire and explosion hazard.

Reacts violently with aluminium on heating.

Conditions to avoid

Contact with incompatible materials.

Heat.

Incompatible materials

Reducing agents

Combustible substances

Hazardous decomposition products

Manganese oxides, Oxygen.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50 >2197 mg/kg (SIDS, 2012; NITE Initial Risk Assessment Report, 2008)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rat LD50 >2000 mg/kg (SIDS, 2012)

Acute toxicity data is not available.

Labor standard law, Japan; Toxic

Manganese(IV) oxide

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation data is not available.

Allergenic and sensitizing effects data is not available.

Germ cell mutagenicity

[GHS Cat. Japan, base data]

cat. 2; mouse : SIDS, 2012

Carcinogenicity

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

Reproductive toxicity data is not available.

Manganese(IV) oxide, powder,
JUNSEI CHEMICAL CO., LTD.,53165jis_J_E1-3,15/03/2021

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

respiratory system (CICAD 12, 1999)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

nervous system; respiratory system (ATSDR, 2012)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

H413-May cause long lasting harmful effects to aquatic life

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

Algae (*Pseudokirchneriella subcapitata*) ErC50 > 100mg/L/72hr (SIDS, 2012)

Water solubility

Insoluble (SIDS, 2012)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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.

14. Transport Information

UN No., UN CLASS

UN No. or ID No.: Not applicable

UN Proper Shipping Name : Not applicable

Class or division (Transport hazard class) : Not applicable

Packing group : Not applicable

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

MARPOL Annex V – Prevention of pollution by garbage discharge

Specific target organ toxicity – repeated exposure: cat.1

Manganese(IV) oxide

Manganese(IV) oxide, powder,

JUNSEI CHEMICAL CO., LTD., 53165jis_J_E1-3, 15/03/2021

Maritime transport in bulk according to IMO instruments

Not applicable to Maritime transport in bulk according to IMO instruments

15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Manganese(IV) oxide

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.

16. Other information

GHS classification and labelling

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

H370-STOT SE 1: H370 Causes damage to organs after single exposure

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

H413-Aquatic Chronic 4: H413 May cause long lasting harmful effects to aquatic life

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 (JISOH)

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)

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)

Manganese(IV) oxide, powder,

JUNSEI CHEMICAL CO., LTD.,53165jis_J_E1-3,15/03/2021

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).