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## Trade Name: Manganese Powder

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### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product Identifier

**Trade name:** Manganese Powder

**Other Names:**

- \* Manganese Metal
- \* Stabilized Powder
- \* Mn Unstabilized Powder
- \* Mn99.9

**Article number:**

**CAS Number:** 7439-96-5

**EC number:** 231-105-1

**Registration number:** 01-2119449803-34-0103

#### 1.2. Identified uses of the substance and uses advised against:

**Sector of Use:**

- SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
- SU9 Manufacture of fine chemicals
- SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement
- SU14 Manufacture of basic metals, including alloys
- SU15 Manufacture of fabricated metal products, except machinery and equipment
- SU16 Manufacture of computer, electronic and optical products, electrical equipment
- SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

**Product category:**

- PC7 Base metals and alloys
- PC19 Intermediate
- PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
- PC24 Lubricants, greases, release products
- PC29 Pharmaceuticals
- PC38 Welding and soldering products (with flux coatings or flux cores.), flux products
- PC39 Cosmetics, personal care products

**Process category:**

- PROC1 Use in closed process, no likelihood of exposure
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation)
- PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC6 Calendering operations
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

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PROC14 Production of preparations or articles by tableting, compression, extrusion, palletisation

PROC15 Use as laboratory reagent

PROC22 Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting

PROC23 Open processing and transfer operations with minerals/metals at elevated temperature

PROC25 Other hot work operations with metals

**Environmental release category:**

ERC1 Manufacture of substances

ERC2 Formulation of preparations

ERC3 Formulation in materials

ERC4 Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 Industrial use resulting in inclusion into or onto a matrix

ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b Industrial use of reactive processing aids

**Article category:**

AC1 Vehicles

AC2 Machinery, mechanical appliances, electrical/electronic articles

AC3 Electrical batteries and accumulators

AC7 Metal articles

**Application of the substance/the mixture:**

Manganese metal

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

**Manufacturer/Supplier:**

MANGANESE METAL COMPANY (PTY) LTD

P O Box 323

NELSPRUIT. 1200

REPUBLIC OF SOUTH AFRICA

Phone: +(27) 013 7594600

**Further information obtainable from:**

Dept. Quality Assurance for Questions about Product Safety / Quality Management

REACH: Only Representative

ECP AG (EuropeanChemicalProducts AG)

Fiirst-Franz-Josef-Str.68

FL-9490 Vaduz

Liechtenstein

Contact: reach@ecp.li

### 1.4. Emergency telephone number:

MANGANESE METAL COMPANY (PTY) LTD

Phone: +(27) 0137594600

ECP AG INFORMATION DEPT. - 24 HOURS HOTLINE: +41 (52) 742 8385

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### 2. HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture:

**Classification according to Regulation (EC) No1272/2008:**

The substance is not classified according to DSD regulation.

The substance is not classified according to the CLP regulation

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

Not applicable, see point 3.

#### 2.2. Label elements

**Labelling according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

**Safety phrases:**

22 Do not breathe dust.

#### 2.3. Other hazards

Dustiness/fine powder may cause a fire/explosion under certain conditions e.g. naked flames, a spark or prolonged friction.

**Results of PBT and vPvB assessment:**

**PBT:** Not applicable.

**vPvB:** Not applicable.

Harmful to aquatic life with long lasting effects

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

#### 3.1. Chemical characterization: Substance

<b>CAS No. Description</b>	7439-96-5 Chemical name: Manganese
<b>Molecular formula:</b>	Mn
<b>Atomic weight:</b>	54.9 g/mol
<b>EC number:</b>	231-105-1
<b>REACH Registration-no:</b>	01-2119449803-34-0103

### 4. FIRST AID MEASURES

#### 4.1. Description of first aid measures

**After Inhalation:**

If inhaled, remove to fresh air. Gargle with water and clean nasal cavity. If difficulty with breathing is experienced, give oxygen and seek medical attention.

**After skin contact:**

Generally, the product does not irritate the skin. If irritation occurs, flush skin with water and wash thoroughly with soap or mild detergent and water, consult physician if irritation persists.

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### After eye contact:

Immediately irrigate and rinse with diphoterine, or with 0.9% w/w sterile solution of sodium chloride or clean water for at least 15 minutes. If foreign body cannot be removed by flushing or if irritation persists, seek medical attention.

### After swallowing:

If swallowed, give large quantities of water or milk. Call physician. Chelation with calcium or sodium ethylenediamine tetraacetic acid has been shown to reduce some of the neurological effects of manganese (Cook, Fahn, Brait, 1974).

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

No further relevant information available.

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

No further relevant information available.

## 5. FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable extinguishing agents:

Class D dry powder (suitable for metal fires) e.g. melting flux, sand or talc (Magnesium trisilicate). Do not use water, foam, halogenated gas or carbon dioxide. Material may also be isolated and allowed to burn itself out.

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

Manganese metal or oxide fumes.

### 5.3. Advice for firefighters

#### Protective equipment:

Use suitable respiratory protection against metal and metal-oxide fumes. A full face respirator with air supply may be required. Heat resistant clothing suitable for protection from burning metal may also be needed.

## 6. ACCIDENTAL RELEASE MEASURES

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

Use suitable personal protective clothing should be worn. Refer to section 8 "Personal protective equipment" below.

Spilled Manganese particulate should be promptly collected using natural fibre brushes and non-sparking or nonstatic-generating equipment. Dry, clean material can be re-used. Wet or otherwise contaminated material should be placed in a well-ventilated steel container and stored in a safe outside area physically separated from other activities. Wet Manganese particulate will slowly oxidise, generate heat and liberate hydrogen gas, which may auto-ignite if ventilation is inadequate. Gross spillage into a waterway may temporarily deplete the dissolved oxygen content of the water and cause silting.

### 6.2. Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 13. See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

### 7. HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

Prevent formation of dust.

Use in a well-ventilated area to keep dust below exposure limits. Do not allow dust to accumulate on equipment or building surfaces.

##### Information about fire - and explosion

Dustiness/fine powder may cause a fire/explosion under certain conditions e.g. naked flames, a spark or prolonged friction.

#### 7.2. Conditions for safe storage

##### Requirements to be met by storerooms and receptacles:

Keep in a closed, dry container. Store away from extreme heat, moisture and incompatible materials.

##### Information about storage in one common storage facility:

Not required.

##### Further information about storage conditions:

Store receptacle in a well-ventilated area. Store in dry conditions.

Protect from humidity and water.

Protect from contamination.

### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

##### Additional information about design of technical facilities:

No further data; see item 7.

#### 8.1. Control parameters

##### Ingredients with limit

Country of Origin (in the EU): Liechtenstein, on behalf of MMC (Pty)Ltd

Occupational Exposure Limit Value EU (in mg Mn/m<sup>3</sup>): proposed OEL for Manganese of 0.2 mg Mn/m<sup>3</sup> inhalable dust and 0.05 mg Mn/m<sup>3</sup> respirable dust

Recommended monitoring procedure: none recommended.

#### 8.2. Exposure

##### EXPOSURE CONTROLS:

Manganese metal is not classified according to directive 67/584/EEC or regulation (EC) No 1272/2008. No legally binding risk management measures have been identified as required.

##### OCCUPATIONAL EXPOSURE CONTROLS:

The EU SCOEL issued a proposed OEL for Manganese of 0.2 mg Mn/m<sup>3</sup> inhalable dust and 0.05 mg Mn/m<sup>3</sup> respirable dust. For good industrial hygiene purposes, ensure containment of gaseous/dusty material. Use local exhaust ventilation (LEV) and respiratory protective equipment (RPE) for all processes especially those resulting in dust generation. Workers are encouraged to use personal protection equipment such as eye/face protection (safety glasses, goggles etc.); Skin protection (gloves, overalls) and respiratory protection in extremely dusty areas/tasks.

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### ENVIRONMENTAL EXPOSURE CONTROLS:

Encourage the re-use of uncontaminated material. Use LEVs to prevent or reduce air emissions. Emissions trapped from LEV should be re-used where possible. Dilute liquid or slurried waste can be treated on-site or off-site waste water treatment plants. Any resulting solid waste which cannot be re-used should be disposed, according to the local laws and regulations.

### Personal protective equipment:

#### General protective and hygienic measures:

Wear suitable protective clothing.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes and skin.

#### Respiratory protection:

Suitable respiratory protective device recommended.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

#### Protection of hands:

Protective gloves

Impervious gloves



#### Material of gloves:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Strong material gloves

Leather gloves

#### Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

#### Eye protection:

Tightly sealed goggles



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

#### General Information:

**Appearance:** Silver-grey metallic solid. Stabilised powder may have a brown, golden or blue coloration due to a thin oxide surface film.

**Form:** Solid material

**Colour:** Silver-grey and/or dull brown

**Odour:** Odourless

#### Change in condition:

**Melting point/Melting range:** 1246 °C Boiling point/Boiling range: 2061 °C

**Flash point:** Not required for inorganic substances.

**Flammability (solid, gaseous):** Not spontaneously flammable. Not classified as a flammable solid in CLP or GHS documentation.

**Danger of explosion:** Not spontaneously explosive.

#### Explosion limits:

**Oxidizing properties:** Not oxidizing

**Vapour pressure at 20 °C:** 1 Pa (955 C)

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**Density at 20 °C:** 7.2 g/cm<sup>3</sup>

**Solubility in / Miscibility with:**  
**water:** Insoluble.

### 9.2. Other information:

Substance is not surface active.

Substance cannot dissociate due to lack of relevant functional groups: pure element.

Substance is not soluble in common organic solvents.

## 10. STABILITY AND REACTIVITY

### 10.1. Possibility of hazardous reactions

Reacts with acids, alkalis and oxidizing agents.

### 10.2. Conditions to avoid

Manganese metal is stable at normal ambient temperature and pressure. During storage and handling avoid generating very fine particles as this could react in the presence of air/oxygen and a source of ignition - causing a fire. Keep dry.

### 10.3. Materials to avoid:

Strong oxidizing agents.

Acids and alkalis.

Moisture.

### 10.4. Hazardous decomposition products:

Hydrogen gas is slowly generated from contact with water. Extreme heat may generate hazardous metallic fumes.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

**Acute toxicity:**

**Primary irritant effect:**

**on the skin:** Irritation possible

**on the eye:** Irritation possible

**Sensitization:** No sensitizing effects known.

## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Aquatic toxicity:** No further relevant information available.

### 12.2. Persistence and degradability

No further relevant information available.

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### 12.3. Bioaccumulative potential

No further relevant information available.

### 12.4. Mobility in soil

No further relevant information available.

**Ecological information:**

**General notes:** Generally not hazardous for water

### 12.5. PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

### 12.6. Other adverse effects

No further relevant information available.

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Recommendation:** No specific considerations but recycling of waste containing manganese metal is encouraged if possible; if not possible dispose waste according to the local laws and regulations. Also refer to section 8.2 above.

### 13.2. Uncleaned packaging:

**Recommendation:** Disposal must be made according to official regulations.

## 14. TRANSPORT INFORMATION

### 14.1. UN number:

### 14.2. UN proper shipping name:

### 14.3. Transport hazard class(es):

### 14.4. Packing group:

### 14.5. Environmental hazards:

**Marine pollutant:** No

### 14.6. Special precautions for user

Not applicable.

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

Not applicable.



## Safety Data Sheet

Manganese Powder

according to 1907/2006/EC, Article 31

Document owner: **MMC Laboratory**

Effective Date:  
**02 May 2017**

Revision Date:  
**18 June 2019**

Revision No:  
**0**

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#### 15. REGULATORY INFORMATION

##### 15.1. Safety, health and environmental regulations/ legislation specific for the substance or mixture:

No further relevant information available.

##### 15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out.

#### 16. OTHER INFORMATION

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing MSDS:** Dept. Product Safety / Quality Assurance.

**Contact:** Prepared by MMC (Pty) Ltd and ECP-AG (REACH-OR EC)

**Abbreviations and acronyms:**

GHS: Globally Harmonized System of Classification and Labelling of Chemicals EINECS: European Inventory of Existing Commercial Chemical Substances CAS: Chemical Abstracts Service (division of the American Chemical Society)

**\* Data compared to the previous version altered.**

#### 17. AMENDMENT HISTORY

The following information documents the last changes

Date	Revised by	Changes
18 June 2019	M Ruiters (MMC) and S Kampers (Parsley Studios)	Added aquatic hazard statement under section 2