


<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		 MANGANESE METAL COMPANY
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	


**Trade Name: Manganese Electrolytic flakes**

## 1 Identification

- **Product identifier**
- **Trade name:** Electrolytic Manganese Metal Flakes
- **CAS Number:**  
7439-96-5
- **Other means of identification:**  
Electrolytic Manganese Metal  
Manganese Metal  
Metallic Manganese in Flake Form  
Mn  
Mn99.9
- **Recommended use and restriction on use**
- **Recommended use:**  
Raw materials.  
Industrial uses.
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
Manganese Metal Company  
PO Box 323  
NELSPRUIT  
1200  
REPUBLIC OF SOUTH AFRICA  
Phone: +27 13 759 4600
- **Emergency telephone number:**  
Manganese Metal Company  
+27 13 759 4600  
REPUBLIC OF SOUTH AFRICA  
.Email: [morne.ruiters@mmc.co.za](mailto:morne.ruiters@mmc.co.za)  
.Website: [//www.mmc.co.za](http://www.mmc.co.za)  
. Emergency telephone number: +27 13 759 4600

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
The substance is not classified as hazardous according to the Globally Harmonized System (GHS).
- **Label elements**
- **GHS label elements** Not regulated.
- **Hazard pictograms:** Not regulated.
- **Signal word:** Not regulated.
- **Hazard statements:** Not regulated.
- **Precautionary statements:** Not regulated.
- **Other hazards** There are no other hazards not otherwise classified that have been identified.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>			 MANGANESE METAL COMPANY
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>	
<b>Revision Date: None</b>	<b>Revision No: 0</b>		

**Trade Name: Manganese Electrolytic flakes**

### 3 Composition/information on ingredients


Ingredient	CAS number	EC number	Content
MANGANESE	7439-96-5	231-105-1	>99

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:**  
Unlikely route of exposure.  
Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Brush off loose particles from skin. Wash with soap and water or diphoterine.  
If skin irritation is experienced, consult a doctor.
- **After eye contact:**  
Remove contact lenses if worn.  
Rinse opened eye for several minutes under running water or diphoterine. If symptoms persist, consult a doctor.
- **After swallowing:**  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed:**  
Gastric or intestinal disorders when ingested.  
Nausea in case of ingestion.
- **Indication of any immediate medical attention and special treatment needed:**  
No relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Fire-extinguishing powder  
Limestone powder  
Dry sand.
- **For safety reasons unsuitable extinguishing agents:** Water
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

**Trade Name: Manganese Electrolytic flakes**

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation.

Avoid formation of dust.

Use personal protective equipment as required.

- **Environmental precautions**

Avoid release to the environment.

Damp down dust with water spray.

- **Methods and material for containment and cleaning up**

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## 7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

Any deposit of dust which cannot be avoided must be regularly removed.

Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water.

Use only in well ventilated areas.

- **Information about protection against explosions and fires:** No special measures required.

- **Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

Protect from humidity and water.

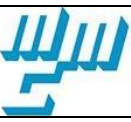
- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from oxidizing agents.

- **Further information about storage conditions:** Keep containers tightly sealed.

- **Specific end use(s)** No relevant information available.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		 MANGANESE METAL COMPANY
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

**Trade Name: Manganese Electrolytic flakes**

## 8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**  
7439-96-5 manganese

PEL (USA)	Ceiling limit value: 5 mg/m <sup>3</sup> as Mn
REL (USA)	Short-term value: 3 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup> fume, as Mn
TLV (USA)	Long-term value: 0.02* 0.1* mg/m <sup>3</sup> as Mn; *respirable **inhalable fraction
EL (Canada)	Long-term value: 0.2 mg/m <sup>3</sup> as Mn; R
EV (Canada)	Long-term value: 0.2 mg/m <sup>3</sup> as manganese
LMPE (Mexico)	Long-term value: 0.2 mg/m <sup>3</sup> como Mn

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes.  
Avoid close or long term contact with the skin.

- **Engineering controls:** No relevant information available.

- **Breathing equipment:**

Not required under normal conditions of use.  
Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.  
For spills, respiratory protection may be advisable.  
Use respiratory protection when grinding or cutting material.

- **Protection of hands:**

Gloves are advised for repeated or prolonged contact.  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.


- **Eye protection:** Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:**

Not required under normal conditions of use.  
Protection may be required for spills.

- **Limitation and supervision of exposure into the environment** No special requirements.

- **Risk management measures** No special requirements.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		 MANGANESE METAL COMPANY
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

**Trade Name: Manganese Electrolytic flakes**

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · Appearance:

##### Form:

Solid material

Flakes

##### Color:

Silver-grey.

#### · Odor:

Nearly odorless

#### · Odor threshold:

Not determined.

#### · pH-value:

Not applicable.

#### · Melting point/Melting range:

1245-1246 °C (2273-2275 °F)

#### · Boiling point/Boiling range:

2061-2097 °C (3742-3807 °F)

#### · Flash point:

Not applicable.

#### · Flammability (solid, gaseous):

Solid product is not flammable.

#### · Auto-ignition temperature:

Not applicable.

#### · Decomposition temperature:

Not determined.

#### · Danger of explosion:

Product does not present an explosion hazard.

#### · Explosion limits

##### Lower:

Not determined.

##### Upper:

Not determined.

#### · Oxidizing properties:

Non-oxidizing.

#### · Vapor pressure at 955 °C (1751 °F):

1 Pa

#### · Density:

##### Relative density:

7.2 g/cm<sup>3</sup> (60.084 lbs/gal)

##### Not applicable. Evaporation rate:

Not applicable.

#### · Solubility in / Miscibility with

##### Water:

Insoluble.

#### · Partition coefficient (n-octanol/water):

Not applicable.

#### · Viscosity

##### Dynamic:


Not applicable.

##### Kinematic:

Not applicable.

#### · Other information

No relevant information available.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	


**Trade Name: Manganese Electrolytic flakes**

## 10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**  
Reacts with strong acids and oxidizing agents.  
Reacts with strong alkali.
- **Conditions to avoid**  
Moisture.  
Prevent formation of dust.
- **Incompatible materials** Oxidizers, strong bases, strong acids
- **Hazardous decomposition products**  
Under fire conditions only: Toxic metal oxide smoke

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**  
**7439-96-5 manganese**  
Ora LD50 9000 mg/kg (rat)
- **Primary irritant effect:**
- **On the skin:** Slight irritant effect on skin and mucous membranes.
- **On the eye:** Slight irritant effect on eyes.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **IARC (International Agency for Research on Cancer):**  
Substance is not listed.
- **NTP (National Toxicology Program):**  
Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration):**  
Substance is not listed.
- **Probable route(s) of exposure:**  
Ingestion.  
Eye contact.  
Skin contact.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

**Trade Name: Manganese Electrolytic flakes**

## 12 Ecological information


- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability**  
Inorganic product, is not eliminable from water by means of biological cleaning processes.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Avoid release to the environment.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Contact waste processors for recycling information.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **UN proper shipping name**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **Transport hazard class(es)**
- **DOT, ADR, IMDG, IATA**
- **Class** Not regulated.
- **Packing group**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **Environmental hazards**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of .MARPOL73/78 and the IBC Code** Not applicable.

<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

**Trade Name: Manganese Electrolytic flakes**

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

- **Section 302 (extremely hazardous substances):**

Substance is not listed.

- **Section 355 (extremely hazardous substances):**

Substance is not listed.

- **Section 313 (Specific toxic chemical listings):**

Substance is listed.

- **TSCA (Toxic Substances Control Act)**

Substance is listed.

- **Proposition 65 (California)**

- **Chemicals known to cause cancer:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

- **Chemicals known to cause developmental toxicity:**

Substance is not listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency):**

- **IARC (International Agency for Research on Cancer):**

Substance is not listed.


- **NIOSH-Ca (National Institute for Occupational Safety and Health):**

Substance is not listed.

- **Canadian Domestic Substances List (DSL):**

Substance is listed.



<b>Safety Data Sheet</b> <b>Electrolytic Manganese Metal Flakes</b> <i>acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 regulations</i>		
<b>Effective Date: 02 May 2017</b>	<b>Printing Date: 02 May 2017</b>	<b>Document owner: MMC Laboratory</b>
<b>Revision Date: None</b>	<b>Revision No: 0</b>	

<b>Trade Name: Manganese Electrolytic flakes</b>
--

## 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.

• **Date of preparation / last revision** 08/05/2017 / -08/05/2017

• **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society) LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and

Toxic vPvB: very Persistent and very

Bioaccumulative NIOSH: National

Institute for Occupational Safety OSHA:

Occupational Safety & Health

LDLo: Lowest Lethal Dose Observed

• **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

SDS PREPARED BY:

MANGANESE METAL COMPANY

P O BOX 323

MBOMBELA

1200

TEL NUMBER +13 759 4600

WEBSITE: [www.mmc.co.za](http://www.mmc.co.za)