
Trade Name: Manganese Electrolytic Flakes

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1. Product identifier

Trade name: Manganese Electrolytic flakes

CAS Number: 7439-96-5

Other means of identification:

Electrolytic Manganese Metal

Manganese Metal

Metallic Manganese in Flake Form

Mn

Mn99.9

1.2. Recommended use and restrictions

Recommended Use:

Raw materials.

Industrial uses.

Restrictions on use:

No relevant information available.

1.3. Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier name: MANGANESE METAL COMPANY

Address: PO Box 323, Nelspruit, South Africa, 1200

Telephone: (+2713) 759 4600

Fax: (+2713) 752 7657

Email: morne.ruiters@mmc.co.za

Website: <http://www.mmc.co.za>

1.4. Emergency telephone number(s)

Emergency (013) 759 4600

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The substance is not classified as hazardous according to the Globally Harmonized System (GHS).

2.2. Label elements

GHS label elements: Not regulated.

Hazard pictograms: Not regulated.

Signal word: Not regulated.

Hazard statements: Not regulated.

Precautionary statements: Not regulated

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2.3. Other hazards

There are no other hazards not otherwise classified that have been identified.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

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

4. FIRST AID MEASURES

4.1. 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. FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing agents:

Fire-extinguishing powder

Limestone powder

Dry sand.

For safety reasons unsuitable extinguishing agents:

Water.

5.2. Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

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5.3. Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device. Wear fully protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.

Avoid formation of dust.

Use personal protective equipment as required.

6.2. Environmental precautions

Avoid release to the environment.

Damp down dust with water spray.

6.3. Methods and material for containment and cleaning up

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

6.4. 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

7.1. 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.

7.2. 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

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Further information about storage conditions: Keep containers tightly sealed.

7.3. Specific end use(s)

No relevant information available.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1. Control parameters

Components with limit values that require monitoring at the workplace:

7439-96-5 manganese

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

8.2. 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.

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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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance: Form: Colour: Odour: Odour Threshold	Solid material Flakes Silver-grey and/or dull brown Nearly odourless Not determined.
pH-value: Melting point/Melting range: Boiling point/Boiling range:	Not applicable. 1245-1246 °C (2273-2275 °F) 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: Upper: Oxidizing properties:	Not determined. Not determined. Non-oxidizing
Vapor pressure at 955 °C (1751 °F):	1 Pa
Density: Relative density: Vapor density: Evaporation rate:	7.2 g/cm ³ (60.084 lbs/gal) Not applicable. Not applicable.
Solubility in / Miscibility with Water:	Insoluble.
Partition coefficient (n-octanol/water):	Not applicable.
Viscosity	

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Dynamic:	Not applicable.
Kinematic:	Not applicable.
Other information	No relevant information available.

10. STABILITY AND REACTIVITY

10.1. 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.

10.2. Possibility of hazardous reactions

Reacts with strong acids and oxidizing agents.

Reacts with strong alkali.

10.3. Conditions to avoid

Moisture.

Prevent formation of dust.

10.4. Incompatible materials

Oxidizers, strong bases, strong acids

10.5. Hazardous decomposition products

Under fire conditions only: Toxic metal oxide smoke

11. TOXICOLOGICAL INFORMATION

11.1. 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):

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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..

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Aquatic toxicity No relevant information available.

12.2. Persistence and degradability

Inorganic product, is not eliminable from water by means of biological cleaning processes.

12.3. Bioaccumulative potential:

No relevant information available.

12.4. Mobility in soil:

No relevant information available.

12.5. Additional ecological information

General notes: Avoid release to the environment.

12.6. Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.7. Other adverse effects

No relevant information available.

13. DISPOSAL CONSIDERATIONS

13.1. 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

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federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

13.2. 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.

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.

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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.

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 02/05/2017 / - 17-08-2017

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/sorinternet/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



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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:

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17. AMENDMENT HISTORY

The following information documents the last changes

Date	Revised by	Changes
27 August 2017	S Kampers Parsley Studios	Changed MMC logo and the document format, no changes to the actual content of the document was made.
04 May 2018	Twice Mnisi	Section 9 of the MSDS: added dull brown on Manganese flake color