
SAFETY DATA SHEET: MANGANESE DIOXIDE, ELECTROLYTIC MANGANESE DIOXIDE
provided in accordance with Article 18(2) of Regulation (EC) No 1272/2008

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier:

Substance name: Manganese dioxide, EMD,
Other names: MnO2
EINECS number: 215-202-6
CAS number: 1313-13-9
REACH Registration number: **[If applicable]**
Unique formula identifier (UFI): Not applicable for this substance

1.2 Relevant identified uses of the Substance/Mixture and uses advised against:

Use in the manufacture of dry-cell batteries-PC7: Base metals and alloys.
Use in the manufacture and glass and ceramics-PC0: Other, glass and ceramics.
Formulation [mixing] of preparations and/or re-packaging (excluding alloys) –PC7: Base metals and alloys.

Add or delete the above to suit your company's needs.

No known uses advised against.

1.3 Details of the supplier of the safety data sheet:(including address, phone numbers etc: **Complete as required.**

1.4 Emergency Telephone: **Complete as required (For EU add 112); CIAV # of receiving country.**

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SECTION 2: HAZARD(S) IDENTITIFCATION

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 [CLP] and the UN GHS: Classified as; Acute Tox 4: Harmful if swallowed; Acute tox 4: Harmful if inhaled; STOT RE 2: May cause damage to
the brain through prolonged or repeated exposure via inhalation.

2.2 Label elements:

Classification	Acute Tox 4, Acute Tox 4, STOT RE2
Pictogram (GHS07, GHS08)	
Signal word	Warning
Hazard statement	H302: Harmful if swallowed. H332: Harmful if inhaled. H373: May cause damage to the brain through prolong or repeated exposure via inhalation
Precautionary statement Prevention	P260, P271, P270, P261, P264
Precautionary statement Response	P301+312, P304+340, P330, P314
CLP supplemental hazard	EUH031: Contact with acids liberates toxic gas. [European Union]

2.3 Other Hazards:

EUH031: Contact with acids liberates toxic gas. [European Union]

The substance is an inorganic metallic solid. Based on available information, the substance does not meet the criteria for classification as persistent, bioaccumulative and toxic or very persistent and very bioaccumulative.

Endocrine disrupting properties have not been identified from existing acute or chronic data.

It is advisable to avoid generating dust as all fine particles have the potential to explode. Long term inhalation (years) of dust causes adverse health effects see section 11. Include other hazards if known.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance [Amend as appropriate]

Manganese dioxide is an inorganic mono-constituent substance. Its impurities are negligible and do not influence the classification.

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Chemical name	EC No.	CAS number	Concentration % w/w	REACH Registration No.
Manganese dioxide	215-202-6	1313-13-9	Complete as per your substance	xx-xxxxxxxxxx-xx-xxxx
Impurity 1: Disodium oxide	215-208-9	1313-59-3	Complete as per your substance	-
Impurity 2:	xxx-xxx-x	xxxx-xx-x	Complete as per your substance	-

3.2 Mixtures: The substance is not a mixture.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

4.1.1 General Information

Avoid inhaling the substance as it can cause long term effects if inhaled. In case of accident or unwellness, seek medical advice immediately**.**

4.1.2 Following Inhalation: Do not inhale. Wear an appropriate mask (specify mask type). Coughing can be expected as an immediate effect, delayed effects occur upon prolonged exposure. Move exposed individual to fresh air Include other relevant information based on your company's procedures.

4.1.3 Following Skin Contact: Wear appropriate protective equipment Include information based on your company's procedures.

4.1.4 Following Eye Contact: Eye protection is encouraged. Include information based on your company's procedures.

4.1.5 Following Ingestion: Do not ingest. Include other relevant information based on your company's procedures.

4.1.6 Self-protection of the first aider: Include other information based on your company's procedures.

4.2 Most important symptoms and effects, both acute and delayed: Breathing difficulties may occur immediately in the event of excessive dustiness due to lung overload. Excessive exposure over long periods could impair movement. Include any useful/relevant information.

4.3 Indication of any immediate medical attention and special treatment needed: Include information based on your company's procedures.

SECTION 5: FIRE-FIGHTING MEASURES:

5.1 Extinguishing media:

Include information on an appropriate extinguishing media and any unsuitable extinguishing media based on your company's procedures.

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5.2 Special hazards arising from substance or mixture:

The substance does not decompose naturally. However, upon combustion it could produce fumes of metallic oxides. Include any other relevant information.

5.3 Advice for fire-fighters: Include information based on your company's procedures.

SECTION 6: ACCIDENTAL RELEASE MEASURES:

6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel:

a) Dusk mask, goggles and overalls are a must. See section 8 for more details.

b) Must have dust control and sufficient ventilation. Avoid all ignition sources.

c) In the event of any accidental release, evacuate the area and consult trained personnel's – Amend as per your company procedures.

6.1.2 For emergency responders: Remove persons to safety. Isolate hazard area and deny entry. Ventilate closed spaces before entering. Use personal protective equipment, specify which to use/which not to use see section 8 – Amend as per your company procedures.

6.2 Environmental precautions:

Substance is not considered an environmental hazard based on available studies. However, it is advisable to keep away from drains/waterways, collect and reuse or dispose of according to the national laws. Include other information based on your company's procedures.

6.3 Methods and material for containment and cleaning up:

In the event of a spill, collect contaminated material and put in appropriate containers for disposal. Dispose of as special waste in compliance with local and national regulations.

6.3.1 For containment: Collect in closed and suitable containers for disposal or reuse. Include other information based on your company's procedures.

6.3.2 For cleaning up: Clean contaminated objects and areas thoroughly observing environmental regulations – Include cleaning and vacuuming technique Amend as per company procedures.

6.3.3 Other information: Include information based on your company's procedure such as clean-up techniques/materials never to be used.

6.4 Reference to other sections: Personal protective equipment: see section 8 & 13

Section 7: HANDLING AND STORAGE:

7.1 Precautions for safe handling:

7.1.1 Recommendations:

a) Use only in well ventilated areas. Avoid generating dust as dust. Wear personal protective clothing, especially the recommended Masks (see Section 8). Include other information based on your company's procedures.

b) Avoid handling with incompatible substances/mixtures (List incompatible substances if known)

c) Avoid dust generating operations or must be carried out in properly ventilated areas while wearing appropriate PPE

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d) Capture dust, if possible, if generated, vacuum dust and compress into pellets to minimize environmental exposure and recycle if possible- Amend as per company procedures

7.1.2 Advice on general occupational hygiene:

a) Do not eat, drink or smoke in work areas.

b) Wash hands before and after use and keep them dry.

c) Remove contaminated clothing and personal protective equipment before entering eating areas - Include other information based on your company's procedures.

7.2 Conditions for safe storage, including any incompatibilities:

7.2.1 Specific storage requirements:

a) Risk management associated to physical and chemical properties

i) Explosive atmosphere: The substance is not explosive, however, store material away from possible explosive materials

ii) Corrosive conditions: The substance does not corrode metal, hence no adverse corrosive effects are expected

iii) Flammability hazard: The substance is not flammable, however, keep away from flammable materials

iv) Incompatible substances or mixtures: Contact with acids liberates toxic gases. List others if known.

v) Evaporative conditions: Avoid storage around organic evaporative materials/substances. The substance does not evaporate under normal conditions of use.

vi) Potential ignition sources: Keep away from ignition sources

b) How to control effects from environmental conditions: (i) Weather conditions, (ii) ambient pressure, (iii) varying temperatures, (iv) sunlight, (v) humidity and (vi) vibration do not affect the integrity of the substance. However, storage environments should be cool and dry **–** Amend as per your company's procedures.

c) How to maintain the integrity of the substance: (i) Stabilisers and (ii) antioxidants are not required. The substance is very stable under normal conditions of use. It does not decompose or disintegrate. Stabilisers and antioxidants are not required.

d) Other advise

i) Ventilation requirements: Ensure adequate ventilation and store at room temperature.

ii) Specific designs for storage: Keep/store only in original container/packaging. Include other information based on your company's procedures.

iii) Quantity limits under storage conditions: There is no limitation as the substance does not pose any physical and chemical hazards.

iv) Packaging compatibility: Store in original/similar packaging. Protect container/packaging against damage – Amend as per company's procedures.

7.3 Specific end uses(s):

Recommendations: Observe instructions for use and see exposure scenarios – Annex 1.

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SECTION 8: EXPOSURE CONTROLS/ PERSONAL PROTECTION:

8.1 Control Parameters:

8.1.1 Occupational exposure limits: The EU SCOEL OEL values for Manganese and its inorganic compounds are 0.2mg/m3 – inhalable and 0.05mg/m3 respirable.

8.1.1.1 National limits: Include other relevant country specific workplace limits.

8.1.1.2 Union limits: 0.2mg/m3 inhalable and 0.05mg/m3 respirable

8.1.1.3 Any other national exposure limit values: Include if available.

8.1.1.4 Union Biological limit values: No union biological limit values exist for Inorganic manganese and its compounds.

8.1.1.5 Any other national biological limit values: Include if available.

8.1.2 Monitoring Procedures: Dust monitoring is recommended, provide methodology as per national laws/company procedures.

8.1.3 Formation of air contaminates: The substance does not produce air contaminants under normal conditions of use. OEL/BLV are not provided Amend as per your company's use.

8.1.4 Derived No Effects Limits (DNELs)/Predicted No Effects Concentrations (PNECs):

Hazard Assessment conclusion for Workers: DNELS

Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Systemic effects - Long-term	DNEL (Derived No Effect Level) 0.2mg/m³	repeated dose toxicity (By inhalation)
Inhalation	Systemic effects - Acute	no hazard identified.	
Inhalation	Local effects - Long-term	no hazard identified.	
Inhalation	Local effects - Acute	no hazard identified.	
Dermal	Systemic effects - Long-term	DNEL (Derived No Effect Level) 0.00414mg/kg bw/day	

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Dermal	Systemic effects - Acute	no-threshold effect and/or no dose-response information available.	
Dermal	Local effects - Long-term	no-threshold effect and/or no dose-response information available.	
Dermal	Local effects - Acute	no-threshold effect and/or no dose-response information available.	
Eyes	Local effects	no hazard identified.	

Hazard Assessment conclusion for the Environment: PNECs

Compartment	Hazard conclusion	Remarks/Justification
Freshwater	PNEC aqua (freshwater): 0.00014mg/L Intermittent releases: 0.00074mg/L	Assessment factor: 50 Extrapolation method: assessment factor PNEC aqua (freshwater) Two chronic NOEC values in algae and Daphnia. NOEC = 10% v/v saturated solution PNEC intermittent release hazard assessment conclusion: PNEC aqua (intermittent releases) PNEC intermittent release assessment factor: 100.0

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		PNEC intermittent release extrapolation method: assessment factor PNEC intermittent release justification: Lowest L(E)C50 value from fish, daphnia and algal studies. EC50 > 0.074 mg/L
Marine water	PNEC aqua (marine water): 0.000014mg/L Intermittent releases: 0.00074mg/L	Assessment factor: 500 Extrapolation method: assessment factor PNEC aqua (marine water) Two chronic NOEC values in algae and Daphnia, with further 10 x factor for freshwater to marine. NOEC = 10% w/w saturated solution (considered to be equivalent to 0.007 mg/L based on other studies indicating that 100%v/v solution was equivalent to 0.074 mg/L)
Sediments (freshwater)	PNEC sediment (freshwater): 0.037mg/kg sediment dw	Assessment factor: 500 Extrapolation method: equilibrium partitioning method PNEC sediment (freshwater) Equilibrium partitioning based on freshwater aquatic PNEC and Kd value of 1355 mL/g. The tenfold safety factor is added to account for ingestion of substance bound to sediment
Sediments (marine water)	PNEC sediment (marine water):	Assessment factor: 5000

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	0.0037mg/kg sediment dw	Extrapolation method: equilibrium partitioning method PNEC sediment (marine water) Equilibrium partitioning based on marine aquatic PNEC and Kd value of 1355 mL/g. The tenfold safety factor is added to account for ingestion of substance bound to sediment
Sewage treatment plant	PNEC STP: 100mg/L	Assessment factor: 10 Extrapolation method: assessment factor PNEC STP Activated sludge Respiration/inhibition test. NOEC = 1000mg/L
Soil	PNEC soil: 0.028mg/kg soil dw	Assessment factor: 500 Extrapolation method: equilibrium partitioning method PNEC soil Equilibrium partitioning based on aquatic PNEC and Kd value of 1355. The tenfold safety factor is added to account for ingestion of substance bound to soil
Air	no hazard identified:	
Secondary poisoning	no potential for bioaccumulation:	Bioaccumulation of Mn is not expected to occur. Hence no secondary poisoning risk exists.

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		Furthermore, it is not possible to derive this, since it would require knowledge of the reference value for Mn in the diet. Assigning a value to this is difficult due to the complex nature of the homeostatic mechanism via the oral route.

8.1.5 Control banding: A control banding approach is not used to decrease risk management measure during the use of this substance for the uses specified in section 1.2.

8.2 Exposure controls: See Exposure scenarios on, Annex 1

8.2.1 Appropriate engineering controls: Dust is trapped; water is collected for treatment and then recycled. Complete as per your company procedures.

8.2.2 Individual protective measures: Overalls, goggles and masks are mandatory during use.

8.2.2.1 Other non-personal protection: Good industrial hygiene is a must. Keep and use in well ventilated areas. See section 5 for more information Amend as per your company's procedures.

8.2.2.2 CEN stand requirement for protective equipment: Mask – Please state the quality/standard/thickness of the personal protective equipment used by your organisation).

a) Eye/face protection: complete as per your company procedures e.g type of goggles, masks.

b) Skin protection: Overalls, gloves and boots are not mandatory; however, they are encouraged for good industrial hygiene (Please specify type of overall, gloves, boots including the thickness of material)

c) Respiratory protection: N95 Mask (Amend as per your company procedures)

d) Thermal hazards: Not applicable

8.2.3 Environmental exposure controls: The substance is not considered as harmful the environment. (Please include environmental controls employed by your company)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES: [the information below is based on available literature and studies]

9.1 General information	
State	Solid
Colour	Black powder
Odour	Odourless
Melting point (Mpt) / Freezing point	>723 K (>450°C), Regulation (EC) No. 440/2008, Annex, A1
Boiling point/boiling range	Melting pt >300°C, hence study not applicable

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Flammability of solids	Not flammable, Regulation (EC) No. 440/2008, Method A10
Lower and upper explosion limit	Not applicable to solids
Flash Point	Not required for inorganic substances
Auto-ignition temperature	Not applicable to solids
Decomposition temperature	Not applicable to inorganic solids
pH	Include if known (where the substance is a solid, the pH of an aqueous solution at a given concentration shall be indicated)
Kinematic viscosity	Not applicable to solids
Water Solubility	Insoluble: 0.073 mg/L, Regulation (EC) No. 440/2008, Annex A6
Partition Coefficient/n_octanol/water	Not applicable for inorganic substances
Vapour pressure	Study not conducted as Mpt >300°C
Density/Relative density	5.21 at 21°C, Regulation(EC) No. 440/2008, Annex, A3
Relative Vapour density	Not applicable to solids
Particle characteristics	Using Sieve method, 99.2% of test material having an inhalable particle size less than 100 µm
9.2 Other information	No additional information relevant to the safe use of the substance
9.2.1 Physical hazard classes	
Explosive properties	Predicted to be non-explosive
Flammable gases	Not applicable as the substance is a solid
Aerosols	Not applicable under normal conditions of use
Oxidizing properties	Non-oxidizing, Method A17
Gases under pressure	Not applicable as the substance is a solid
Flammability of liquids/Solids	Not flammable
Self-reactive substances and mixtures	Not self-reactive
Pyrophoric liquids	Not applicable as the substance is a solid
Pyrophoric solids	Does not have pyrophoric properties
Self-heating substances and mixtures	Spontaneous ignition does not occur
Substances and mixtures which emit flammable gases in contact with water	Predicted not to emit flammable gases upon contact with water
Oxidising Liquids/solids	Non oxidising, Method A17
Organic peroxides	Not applicable to inorganic substances
Corrosive to metals	The substance is not corrosive to metals
Desensitised explosives	Not applicable
9.2 Other information	No additional information relevant to the safe use of the substance

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SECTION 10: STABILITY AND REACTIVITY: [Amend information below to conform to your company information]

10.1 Reactivity: No specific test data related to reactivity available for this substance.

10.1.1 **Reactivity Hazard of substance:** Not applicable for inorganic substances

10.1.2 **Reactivity hazard of mixture:** Not applicable as the substance is not a mixture.

10.2 Chemical stability: The substance is chemically stable under recommended conditions of storage, use and temperature.

10.3 Possibility of Hazardous reaction: No hazardous reaction when handled and stored according to provisions.

10.4 Conditions to avoid: Include your company's information.

10.5 Incompatible Materials: Include your company's information.

10.6 Hazardous decomposition products: Does not decompose when used as intended. Include your company's information.

SECTION 11: TOXICOLOGICAL INFORMATION: [The information in this section is from experimental data and other available literature]

11.1 Information on toxicological effects:

a) Acute toxicity:

Acute oral toxicity: No study available but classified as acute Tox 4 under Annex I index # 025-001-00-3.

Acute dermal toxicity: No study available. No concerns predicted

Acute inhalation toxicity: No study available but classified as acute Tox 4 under Annex I index # 025-001-00-3

b) Skin corrosion/irritation:

Not irritating in rabbits (one study according to OECD guideline 404 and EU method B.4, GLP), applied to the intact skin for 24, 48 and 72 hours post dosing. Primary dermal irritation index for all animals = 0. No effects were noted during the study.

c) Serious eye damage/irritation:

Not irritating in the rabbit (one study according to OECD guideline 405 and EU method B. 5, GLP); undiluted test material applied to the right eye of three animals. Cornea score: 0 of Max 80; Iris score: 0 of max 10 and Chemosis score: 1.33 of max 20. Fully reversible within 48hrs.

d) Respiratory or skin sensitization:

Not a skin sensitizer in the mouse (One study to OECD guideline 429 and EU method B.42, Local lymph node assay, GLP). There is not information available for respiratory sensitization. However, it is predicted not to be a respiratory sensitizer.

e) Germ cell mutagenicity:

Negative in all test conducted using a MnCl2 – a very soluble salt considered as a worse-case evaluation:

- Ames test with S. typhimurium TA 98, TA 100, TA 1535, TA 1537, E coli WP2 uvrA (Met. act.: with and without) (OECD TG 471, EU method B13 and GLP); No toxicity was observed up a concentration of 5000 ug/plate.

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- Mammalian cell *gene mutation assay with mouse lymphoma L5178Y cells (met. act.: with and without) (OECD 476 and GLP); Negative for mouse lymphoma Cytoxicity: Yes, induced toxicity was not at the highest dose.*
- *In-vitro ma*mmalian chromosome aberration test with human lymphocytes (Met. act.: with and without) (OECD guideline 473 and GLP). Negative for lymphocytes. Cytotoxicity: Yes

f) Carcinogenicity:

There are no specific studies on carcinogenicity for this substance. However, since all in-vitro genotoxicity test on a more bioavailable manganese salt were negative and an expert report (Jenkinson, 2009) as well as a literature review on carcinogenicity for Mn and its inorganic compounds (Assem et al, 2011) concluded – no concerns, carcinogenicity in humans is not expected.

g) Reproductive toxicity:

Two generation reprotoxicity study on the male/female rats using MnCl2 via inhalation (OECD guideline 416, GLP) concluded: No treatment related effects at 20 mg/m³ air in F0, F1 and F2 generations (Jardine L, 2013 and McGough & Jardine, 2017) - Not toxic to reproduction

A Prenatal-developmental toxicity study using MnCl2 via inhalation (OECD 414, GLP): concluded no fetal abnormalities at not specified at 15 mg/m³ (Dettwiler M, 2016)

h) Specific target organ toxicity (Single exposure):

Based on available data the classification criteria are not met.

i) Specific target organ toxicity (repeated exposure):

Classified based on some epidemiological studies on battery workers. These studies highlighted the possibility of adverse health effects via repeated, long term inhalation exposure of dust in excess of exposure limits. This classification is supported by the Roels *et al,* 1992 study.

j) Aspiration hazard:

Data lacking

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties: The substance is not considered an endocrine disruptor based on available literature – Data lacking.

SECTION 12: ECOLOGICAL INFORMATION:

12.1 Toxicity: No environmental concerns

Acute (short-term) toxicity:

a) Fish: OECD guideline 203, EU method C1 and GLP. LD50 (96h) for freshwater fish: >100%v/v; NOEC (96h) >100% v/v

b) Crustacean: OECD guideline 202, EU method C2 and GLP. EC50/LC50 (48h) for freshwater invertebrates: >0.0735 mg/L; NOEC (48h): 0.0735 mg/L

c) Algae/aquatic plants: OECD 201, EU method C3 and GLP. EC50/LC50 (72h): >100%v/v; NOEC (72h): 100%v/v.

ASRI (Activated sludge respiratory inhibition): OECD guideline 209, EU method C11 and GLP. EC50: >1000 mg/L; NOEC (>3h): 1000 mg/L

d) Chronic (long-term) toxicity:

Crustacean- Daphnia reproductive test: OECD guideline 211 and GLP. EC50 (24h, 48h, 98h, and 8days): >100% v/v; NOEC (8d): 10%v/v.

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12.2 Persistence and degradation	No potential for persistence	According to the Guidance on information requirements and chemical safety assessment, Chapter R.11: PBT assessment, "the PBT and vPVB criteria of Annex XIII to the regulation do not apply to inorganic substances". Therefore, MnO2 is not considered to require any further assessment of PBT properties.
12.3 Bioaccumulative potential	No potential for bioaccumulation	According to the Guidance on information requirements and chemical safety assessment, Chapter R.11: PBT assessment, "the PBT and vPVB criteria of Annex XIII to the regulation do not apply to inorganic substances". Therefore, MnO2 is not considered to require any further assessment of PBT properties.
12.4 Mobility in soil	No potential to move into ground water	Data lacking

12.5 Results of PBT and vPvB assessment:
According to the Guidance on information requirements and chemical safety assessment, Chapter R.11: PBT assessment, "the PBT and vPVB criteria of Annex XIII to the regulation do not apply to inorganic substances". Therefore, MnO2 is not considered to require any further assessment of PBT properties.

12.6 Endocrine disrupting properties:
The substance is not considered an endocrine disruptor based on available literature – Data lacking.

12.7: Other adverse effects: None known

SECTION 13: DISPOSAL CONSIDERATIONS: Include your company's information.

13.1 Waste treatment methods: Waste disposal in accordance with local and national laws covering waste and dangerous waste. Include additional company specific information.

a) Waste treatment-relevant information: Include your company's /national law information.

b) Physical/chemical properties that affect waste treatment option: None

c) Sewage disposal-relevant information: Include your company's/national laws information.

d) Precautions for recommended waste treatment options: Include your company's information.

SECTION 14: TRANSPORT INFORMATION:

Transport may take place according to national regulations or land transport (ADR/RID), sea transport (IMDG) or Air transport (ICAO-TI/IATA-DGR).

14.1 UN Number: Include number or use not applicable if this is the case.

14.2 UN proper shipping name: Include name or use not applicable if this is the case.

14.3 Transport hazard class: Not hazardous

14.4 Packaging group: Include packaging group or use not applicable if this is the case.

14.5 Environmental hazard: Not hazardous to the environment

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14.6 Special precautions for users: Always transport in close containers, avoid generating dust [Amend as appropriate]

14.7 Maritime transport in bulk according to IMO instruments Complete as appropriate or used not applicable if this is the case.

SECTION 15: REGULATORY INFORMATION: [Delete as appropriate and include regulatory information specific to your country...]

15.1 Safety, health and environmental regulations/legislation for the substance:

UN GHS - UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS): According to Chapter 1.5.2 of the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS) safety data sheets (SDS) are only required for substances and mixtures that meet the harmonized criteria for physical, health or environmental hazards. This substance meets these criteria; hence a safety data sheet is required.

EU CLP – Classification Labeling and Packaging Regulation: According to Article 59(2)(b) of (EC) No 1272/2008 (CLP), which amends REACH article 31(1), safety data sheets (SDS) are only required for substances and mixtures/special preparations that meet the harmonized criteria for physical, health or environmental hazards. MnO2 meets this criterion, hence a SDS according to 453/2010/EC is needed – this template is designed to meet this criteria.

EU REACH – Registration, Evaluation and Authorisation of Chemicals: REACH article 31(7) requires relevant exposure scenarios from the Chemical Safety Report (CSR) to be annexed to the SDS. These exposure scenarios are only required for hazard-classified substances or mixtures. This substance is hazard-classified according to CLP; therefore exposure scenarios are required. Ask your REACH/Chemical regulatory team.

15.2 Chemical Safety Report (CSR): A chemical safety assessment has been carried for this substance.

SECTION 16: OTHER INFORMATION:

a) If using this template to develop your company's SDS in the case of a revised safety data sheet, a clear indication of where changes have been made to the previous version of the safety data sheet is required in this section, unless such indication is given elsewhere in the safety data sheet, with an explanation of the changes, if appropriate. A supplier of a substance or mixture shall be able to provide an explanation of the changes upon request.

b) A key/legend to abbreviations and acronyms used in the SDS should be added in this section.

c) Key Literature:

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2. Atwal SS and Tremain SP (2009). MnO2 (Erachem): Determination of Oxidising Properties (Solids). Testing laboratory: Harlan Laboratories Limited, Shardlow Business Park, Shardlow, Derbyshire, DE72 2GD, UK. Report no.: 2702-0017. Owner Company: International Manganese Institute, 17 Rue Duphot, 75001 Paris, FRANCE. Report date: 2009-09-14.
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ANNEX 1: EXPOSURE SCENERIOS (Include ES)