



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name of the substance Manganese Product
Identification number 231-105-1 (EC number)
Registration number -
Synonyms None.
Issue date 28-May-2015
Version number 02
Revision date 29-September-2023

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Electronic Materials
Address 6070 Parkland Boulevard
Mayfield Heights, OH 44124
United States
Division
Telephone 1.216.383.4019
e-mail ehs@materion.com
Contact person Theodore Knudson

1.4. Emergency telephone number See Section 16.

Supersedes date 28-May-2015

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Substances and mixtures which, in contact with water, emit flammable gases Category 3 H261 - In contact with water releases flammable gases.

Environmental hazards

Hazardous to the aquatic environment, long-term aquatic hazard Category 3 H412 - Harmful to aquatic life with long lasting effects.

Hazard summary Material reacts with water. In contact with water releases flammable gases. Dangerous for the environment if discharged into watercourses. Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms



Signal word Warning

Hazard statements

H261 The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.
H412 In contact with water releases flammable gases.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.

Response

P370 + P378 In case of fire: Use appropriate media for extinction.

Storage

P402 + P404 Store in a dry place. Store in a closed container.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

2.3. Other hazards

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Manganese	199 - 200	7439-96-5 231-105-1	-	-	#

Classification: -

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4: First aid measures

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation

Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact

Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. Get medical attention if symptoms occur.

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

Nausea, vomiting. Coughing.

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

Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards

In contact with water releases flammable gases.

5.1. Extinguishing media

Suitable extinguishing media

Powder. Dry sand.

Unsuitable extinguishing media

Water.

5.2. Special hazards arising from the substance or mixture

Water reactive material.

5.3. Advice for firefighters

Special protective equipment for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special firefighting procedures Do not get water inside container.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Do not get water on spilled substance or inside containers. The product is immiscible with water and will spread on the water surface. Prevent product from entering drains. Stop the flow of material, if this is without risk. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimise spreading or contact with rain.

6.4. Reference to other sections For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Do not allow water to get into container because of violent reaction and possible flash fire. Handle under inert gas. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Never allow product to get in contact with water during storage. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a dry place. Store in a building without sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Manganese Product	MAK	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
	STEL	1,6 mg/m ³	Inhalable fraction.
		0,16 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	MAK	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
	STEL	1,6 mg/m ³	Inhalable fraction.
		0,16 mg/m ³	Respirable fraction.

Belgium. Exposure Limit Values

Material	Type	Value
Manganese Product	TWA	0,2 mg/m ³
Components	Type	Value
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Material	Type	Value	Form
Manganese Product	MAC	0,2 mg/m ³	Total dust.
		0,05 mg/m ³	Respirable dust.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	MAC	0,2 mg/m ³	Total dust.
		0,05 mg/m ³	Respirable dust.

Czech Republic. OELs. Government Decree 361

Material	Type	Value	Form
Manganese Product	Ceiling	0,4 mg/m ³	Aerosol, inhalable.
	TWA	0,2 mg/m ³	Aerosol, inhalable.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	Ceiling	0,4 mg/m ³	Aerosol, inhalable.
	TWA	0,2 mg/m ³	Aerosol, inhalable.

Denmark. Exposure Limit Values

Material	Type	Value	Form
Manganese Product	TLV	0,2 mg/m ³	Dust.
		0,2 mg/m ³	Inhalable fume.
		0,05 mg/m ³	Respirable.
		0,05 mg/m ³	Respirable fume.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TLV	0,2 mg/m ³	Dust.
		0,2 mg/m ³	Inhalable fume.
		0,05 mg/m ³	Respirable.
		0,05 mg/m ³	Respirable fume.

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Total dust, respiratory fraction
		0,05 mg/m ³	Fine dust, respiratory fraction
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Total dust, respiratory fraction
		0,05 mg/m ³	Fine dust, respiratory fraction

Finland. Workplace Exposure Limits

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable dust.
		0,02 mg/m ³	Respirable.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable dust.

Finland. Workplace Exposure Limits Components**Type****Value****Form**

0,02 mg/m3

Respirable.

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984 Material**Type****Value****Form**

Manganese Product

VME

1 mg/m3

Fume.

Regulatory status: Indicative limit (VL)**Components****Type****Value****Form**Manganese (CAS
7439-96-5)

VME

1 mg/m3

Fume.

Regulatory status: Indicative limit (VL)**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)****Material****Type****Value****Form**

Manganese Product

TWA

0,2 mg/m3

Inhalable fraction.

0,02 mg/m3

Respirable fraction.

Components**Type****Value****Form**Manganese (CAS
7439-96-5)

TWA

0,2 mg/m3

Inhalable fraction.

0,02 mg/m3

Respirable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace Material**Type****Value****Form**

Manganese Product

AGW

0,2 mg/m3

Inhalable fraction.

0,02 mg/m3

Respirable fraction.

Components**Type****Value****Form**Manganese (CAS
7439-96-5)

AGW

0,2 mg/m3

Inhalable fraction.

0,02 mg/m3

Respirable fraction.

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces**Material****Type****Value****Form**

Manganese Product

TWA

0,2 mg/m3

Inhalable fraction.

0,05 mg/m3

Respirable fraction.

Components**Type****Value****Form**Manganese (CAS
7439-96-5)

TWA

0,2 mg/m3

Inhalable fraction.

0,05 mg/m3

Respirable fraction.

Iceland. OELs. Regulation 154/1999 on occupational exposure limits**Material****Type****Value****Form**

Manganese Product

STEL

5 mg/m3

Total dust.

TWA

2,5 mg/m3

Total dust.

1 mg/m3

Respirable dust.

0,2 mg/m3

Inhalable fraction.

0,05 mg/m3

Respirable fraction.

Components**Type****Value****Form**Manganese (CAS
7439-96-5)

STEL

5 mg/m3

Total dust.

TWA

2,5 mg/m3

Total dust.

1 mg/m3

Respirable dust.

0,2 mg/m3

Inhalable fraction.

0,05 mg/m3

Respirable fraction.

Ireland. Occupational Exposure Limits

Material	Type	Value	Form
Manganese Product	STEL	3 mg/m ³	Inhalable fume.
	TWA	0,2 mg/m ³	Inhalable fraction.
		0,2 mg/m ³	Inhalable fume.
		0,05 mg/m ³	Respirable fraction.
		0,02 mg/m ³	Respirable fume.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	3 mg/m ³	Inhalable fume.
	TWA	0,2 mg/m ³	Inhalable fume.
		0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
		0,02 mg/m ³	Respirable fume.

Italy. Occupational Exposure Limits

Material	Type	Value	Form
Manganese Product	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Welding fume.
		0,05 mg/m ³	

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Welding fume.
		0,05 mg/m ³	

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Alveolar fraction

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Alveolar fraction

Netherlands. OELs (binding)

Material	Type	Value	Form
Manganese Product	STEL	0,05 mg/m ³	Respirable fraction.

Netherlands. OELs (binding)

Material	Type	Value	Form
	TWA	0,2 mg/m ³	Inhalable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	STEL	0,05 mg/m ³	Respirable fraction.
	TWA	0,2 mg/m ³	Inhalable fraction.

Norway. Administrative Norms for Contaminants in the Workplace

Material	Type	Value	Form
Manganese Product	TLV	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TLV	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Poland. Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value	Form
Manganese Product	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,1 mg/m ³	Inhalable fraction.
		0,02 mg/m ³	Respirable fraction.

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.
Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Spain. Occupational Exposure Limits

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable dust.
		0,05 mg/m ³	Respirable dust.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable dust.
		0,05 mg/m ³	Respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Manganese Product	TWA	0,5 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,5 mg/m ³	Inhalable fraction.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

Material	Type	Value	Form
Manganese Product	TWA	0,2 mg/m ³	Inhalable fraction.
		0,05 mg/m ³	Respirable fraction.

Components	Type	Value	Form
Manganese (CAS 7439-96-5)	TWA	0,2 mg/m ³	Inhalable fraction.

Components	Type	Value	Form
		0,05 mg/m ³	Respirable fraction.

Biological limit values

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Material	Value	Determinant	Specimen	Sampling Time
Manganese Product	20 µg/l	Mangan	Blood	*
Components	Value	Determinant	Specimen	Sampling Time
Manganese (CAS 7439-96-5)	20 µg/l	Mangan	Blood	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- **Hand protection** Wear appropriate chemical resistant gloves.

- **Other** Wear suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Inform appropriate managerial or supervisory personnel of all environmental releases. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Colour Silver

Odour None.

Odour threshold Not applicable.

pH Not applicable.

Melting point/freezing point 1246 °C (2274,8 °F)

Initial boiling point and boiling range 2061 °C (3741,8 °F)

Flash point Not applicable.

Evaporation rate Not applicable.

Flammability (solid, gas) Flammable solid.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit – upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	450 °C (842 °F)
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
9.2. Other information	
Density	7,44 g/cm ³
Molecular formula	Mn
Molecular weight	54,94 g/mol
Specific gravity	7,44

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material reacts with water.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Exposure to moisture. Exposure to water vapour. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials.
10.5. Incompatible materials	Water. Water, moisture.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
Information on likely routes of exposure	
Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	Nausea, vomiting. Coughing.
11.1. Information on toxicological effects	
Acute toxicity	Not known.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.

Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Due to partial or complete lack of data the classification is not possible.

Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Harmful to aquatic life with long lasting effects. Due to partial or complete lack of data the classification for hazardous to the aquatic environment, acute hazard, is not possible.

Product	Species	Test Results
Manganese Product		
Aquatic		
<i>Acute</i>		
Crustacea	EC50 Water flea (<i>Daphnia magna</i>)	40 mg/l, 48 hours

12.2. Persistence and degradability No data is available on the degradability of this substance.

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Consult authorities before disposal. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN2813
14.2. UN proper shipping name	WATER-REACTIVE SOLID, N.O.S. (Manganese Product)

14.3. Transport hazard class(es)

Class 4.3
Subsidiary risk -
Label(s) 4.3
Hazard No. (ADR) 423
Tunnel restriction code E

14.4. Packing group III

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number UN2813

14.2. UN proper shipping name WATER-REACTIVE SOLID, N.O.S. (Manganese Product)

14.3. Transport hazard class(es)

Class 4.3
Subsidiary risk -
Label(s) 4.3

14.4. Packing group III

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number UN2813

14.2. UN proper shipping name WATER-REACTIVE SOLID, N.O.S. (Manganese Product)

14.3. Transport hazard class(es)

Class 4.3
Subsidiary risk -
Label(s) 4.3

14.4. Packing group III

14.5. Environmental hazards No.

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number UN2813

14.2. UN proper shipping name Water-reactive solid, n.o.s. (Manganese Product)

14.3. Transport hazard class(es)

Class 4.3
Subsidiary risk -

14.4. Packing group III

14.5. Environmental hazards No.

ERG Code 4W

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo aircraft Allowed with restrictions.

Cargo aircraft only Allowed with restrictions.

IMDG

14.1. UN number UN2813

14.2. UN proper shipping name WATER-REACTIVE SOLID, N.O.S. (Manganese Product)

14.3. Transport hazard class(es)

Class 4.3
Subsidiary risk -

14.4. Packing group III

14.5. Environmental hazards

Marine pollutant No.

EmS F-G, S-N

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC: Intermediate Bulk Container.
IMDG: International Maritime Dangerous Goods.
MAC: Maximum Allowed Concentration.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative, toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TLV: Threshold Limit Value.
TWA: Time Weighted Average.
VLE: Exposure Limit Value.
VME: Exposure Average Value.
vPvB: Very persistent and very bioaccumulative.

References

Not available.

Information on evaluation method leading to the classification of mixture

Not applicable.

Training information

Follow training instructions when handling this material.

Further information

Transportation Emergency
Call Chemtrec at:
US: 800.424.9300
International: 703.741.5970
Spain: 900.868.538
Switzerland: 0800.564.402
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059
South Korea Toll-free Number – 080-880-0468

Disclaimer

To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is not in the form of a Safety Data Sheet (SDS), but is actually a voluntary Product Information Sheet closely following the guidelines of the Safety Data Sheet – COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 (REACH/SDS).