

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 1/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

PRODUCT SAFETY DATA SHEET

for

Medium carbon ferromanganese

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

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

1.1 Product identifier

Name of the product:	Medium-carbon ferromanganese
Synonyms:	MC FeMn
Trade name:	Medium-carbon ferromanganese
REACH registration number Manganese:	01-2119449803-34-0033
REACH registration number Iron:	01-2119462838-24-0093

1.2 Relevant identified uses of the substance/mixture and uses advised against

Manufacturing of metals, including alloys

Used for steel production

Additive

Used in the production of metal castings

Uses not recommended: None

1.3 Details of the supplier of the safety data sheet

Name:	OFZ, a.s.
Address:	Široká 381, 027 41 Oravský Podzámok, Slovakia
Phone number:	+421/43/5891 111
Fax number:	+421/43/5804 320
E-mail:	ofz@ofz.sk

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 2/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

1.4 Emergency telephone number

European emergency tel. number: 112

Emergency phone number

company: +421/43/5804 111

National toxicological

information center: +421 2 5477 4166

2. HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

2.1.1 Classification of the substance according to the CLP / GHS regulation

The substance does not meet the criteria for inclusion in accordance with Regulation EC 1272/2008.

2.2 Label elements

2.2.1 Labeling according to the CLP / GHS regulation

The substance does not meet the criteria for inclusion in accordance with Regulation EC 1272/2008.

Signal word: None

2.3 Other hazards

The substance does not meet the criteria for classification as a PBT or vPvB substance.

It can form an explosive mixture of dust and air when dispersed. When handling MC FeMn, dust may occur. Although the substance does not meet the classification criteria based on the available EU CLP literature on long-term exposure at high concentrations, the neurotoxic effects have been reported.

The substance is not considered an endocrine disruptor.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance(s)

Ferromanganese is not considered a substance.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 3/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

3.2 Constituents

Chemical name	EC number	CAS number	Concentration in % wt. in FeMn	REACH registration number
Component 1 manganese	231-105-1	7439-96-5	> 78	01-2119449803-34-0033
Component 2 iron	231-096-4	7439-89-6	< 20	01-2119462838-24-0093
Impurity 1 carbon	231-153-3	74440-44-0	< 1.5	-
Impurity 2 silicon	231-722-6	7704-34-9	< 1.0	-
Impurity 3 phosphorus	601-810-2	12185-10-3	< 0.25	-

4. FIRST AID MEASURES

4.1 Description of first aid measures

<u>General information:</u>	In contact with clothing, skin and eyes, no damage to health is expected. However, in the event of an accident or persistent discomfort, seek medical attention immediately.
<u>Inhalation:</u>	If inhalation occurs, move the person away from the contaminated area. If spontaneous breathing is not present, provide artificial respiration.
<u>Skin contact:</u>	If skin contact occurs, remove contaminated clothing and rinse skin under running water.
<u>Eye contact:</u>	If the material is in the eyes, pull back the lids and flush the eyes continuously under running water. Continue rinsing until your doctor/physician tells you otherwise, but for at least 15 minutes.
<u>Ingestion:</u>	Contact a doctor/physician for help. If the item has been swallowed, do not induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

There is no danger of acute poisoning or damage to health - the substance is not classified.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 4/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable:

MC FeMn is a non-flammable substance in its solid state, but its dust is flammable and can form an explosive mixture with air. In case of strong heating of the material, oxides of manganese, silicon and carbon can be released.

Unsuitable:

Do not use water. Avoid polluting drain and drainage systems.

5.2 Special hazards arising from the substance or mixture

None

5.3 Advice for firefighters

Act as it is required to extinguish surrounding fires: evacuate the area and contact emergency services. Do not stay at the windward side and warn any persons staying so that they might be under threat. When fighting a fire, wear full protective clothing including self-contained breathing apparatus. Use water mist to cool intact containers and adjacent storage places and areas.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear suitable protective equipment (see section 8).

6.1.2 For emergency personnel

Ensure sufficient ventilation and ventilate these spaces before entering confined spaces.

Avoid stirring up dust.

Isolate the affected area and do not allow unprotected persons to approach the area.

Wear appropriate protective equipment. (See section 8)

Avoid inhalation: make sure the area is well ventilated or wear suitable respirators, wear suitable protective equipment. (See section 8)

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 5/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

6.2 Environmental precautions

Based on the available studies, the given substance does not endanger the environment. However, large amounts of material can clog drains, so disposing of it in this way is not recommended.

6.3 Methods and material for containment and cleaning up

Material in the form of dust must be collected in suitable containers to prevent inhalation of dust particles.

Use appropriate respiratory protection. MC FeMn in the form of dust is better vacuumed than swept. Prevent material from entering drains and drains.

6.4 Reference to other sections

For more detailed information regarding exposure controls and personal protective equipment, see section 8.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid stirring up dust. Wear protective clothing, gloves and safety glasses.

Wear suitable respirators where necessary.

Read the information on the label carefully before use. To avoid contact with eyes and skin or inhalation, it is recommended to follow the principles of safety and health protection at work. Follow the principles of good personal hygiene, including washing your hands before eating. Avoid eating, drinking and smoking in polluted areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well-ventilated place away from water, moisture, acids, alkaline oxidizing agents, heat sources and food. Keep/store only in original containers/packaging.

7.3 Specific end use(s)

Dry the wetted material before use and follow the instructions for its use.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 6/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limit values

Occupational exposure limit value (OEL): EU SCOEL has recently recommended maintaining the occupational exposure limit value for manganese and its inorganic compounds at 0.2 mg/m^3 for inhaled dust and 0.05 mg/m^3 for inhaled dust

Derived No Effect Limit (DNEL) for long-term exposure: achieved by keeping respirable dust levels below the OEL

8.2 Exposure controls

To control possible exposure, it is necessary to prevent the formation and stirring of dust. The use of suitable protective equipment is recommended. If MC FeMn dust is visible, take occupational safety measures to prevent fine dust above 0.2 mg/m^3 in the workplace.

8.2.1 Workplace exposure control

Measure the workplace exposure limit regularly. If dust is generated during the handling of the material, use an extraction or ventilation system or other means to maintain dust limit values in the air.

8.2.2 Personal protective equipment

8.2.2.1 Eye/face protection

Wear safety glasses.

8.2.2.2 Skin protection

Wear protective clothing, gloves and use protective hand cream.

8.2.2.3 Protection of the respiratory system

Use respirators.

8.2.3 Control of environmental exposure

Dust emissions from the ventilation system or workplace must be checked to see if they meet the requirements of environmental protection legislation. A concentration below 0.2 mg/m^3 does not endanger the environment.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 7/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Grayish metallic substance in the solid state in lump form or in the form of chips
Odor:	none
Odor threshold:	none, the substance is odorless
pH:	not determined
Boiling point:	not determined (substance in solid state with melting point > 300°C)
Melting/solidification temperature:	>723 K (>450°C), Regulation (EC) no. 440/2008, Annex, A1
Flash point:	not determined (substance is inorganic)
Flammability:	non-flammable
Explosive properties:	not explosive
Oxidizing properties:	does not oxidize
Vapor pressure:	not determined (melting temperature > 300°C)
Density:	approx. 7.3 g/cm ³ at 20 °C
Solubility in water:	insoluble
Distribution coefficient n-octanol/water (log. value):	not determined (substance is inorganic)
Viscosity:	not determined (at normal ambient temperature, the substance is solid and not liquid)
Auto-ignition temperature:	none
Dissociation constant:	the substance does not decompose due to the lack of appropriate functional groups
Surface tension:	the substance is not active on the surface
Stability in organic solvents:	not determined (substance is inorganic)

9.2 Other information

No further information is available regarding the safe use of the substance.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 8/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data are available for this substance.

10.2 Chemical stability

Under normal temperature conditions, conditions of storage and use, the given substance is stable.

10.3 Possibility of hazardous reactions

If the material is handled and stored according to the instructions, there is no risk of dangerous reactions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames or other sources of ignition. Exposure of the material to moisture can lead to oxidation of the material and the possible formation of a small fraction.

10.5 Incompatible Materials

It does not tolerate oxidizing agents (e.g. peroxides, hypochlorites), acids (e.g. nitric acid), bases (e.g. sodium hydroxide) and water (when in contact with water, the dust releases flammable hydrogen gas).

10.6 Hazardous decomposition products

The material can release poisonous oxides of silicon and carbon when heated to the decomposition temperature.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

MC FeMn is not a substance classified as carcinogenic, mutagenic or toxic for reproduction.

Human health hazards may occur from exceeding the occupational exposure limit (OEL) and long-term exposure to excessive levels of manganese, which can lead to manganese poisoning, an affecting, usually worsening, disorder of the central nervous system (CNS) with symptoms reminiscent of Parkinson's disease. Symptoms such as loss of appetite, exhaustion, and changes in speech, balance, and personality may occur. However, due to the form of the product in normal use, inhalation or swirling of dust is not very likely.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 9/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

Eyes Due to the form of the product and the nature of its use, no risk to the eyes is expected. The product can only be dangerous if dust is created.

Inhalation Due to the form of the product and the nature of its use, inhalation is not expected in normal use. Long-term excessive exposure to manganese can lead to manganese poisoning, a debilitating, usually worsening central nervous system (CNS) disorder with symptoms reminiscent of Parkinson's disease.

Skin Mild irritation. Prolonged or repeated contact may lead to slight irritation due to mechanical action.

Ingestion Low to moderate toxicity. Ingestion may lead to stomach and digestive tract irritation. However, due to the form of the product, ingestion is not considered likely.

Toxicological data

MANGANESE (7439-96-5) LD ₅₀ (ingestion): 9000 mg/kg (rat)	SILICON (7440-21-3) LD ₅₀ (ingestion): 3160 mg/kg (rat)
PHOSPHORUS (7723-14-0) LD ₅₀ (oral): >15,000 mg/kg (rat)	IRON (7349-89-6) LD ₅₀ (oral): 20,000 mg/kg (guinea pig)

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Ecotoxicity values for manganese (EPA, 2002):

LD₅₀ (FRESHWATER) (Basilichthys australis): total Mn >50,000 mcg/L for 96 hours - static

LC₅₀ (FRESHWATER) (Gastrophryne carolinensis): total Mn 1,420 mcg/L for 7 days - recovery

LC₅₀ (FRESHWATER) RAINBOW TROUT (Oncorhynchus mykiss): total Mn >170 - <15,610 mcg/L for 28 days - recovery

12.2 Distribution in the environment

Soluble compounds of manganese (Mn²⁺) are relatively mobile and can penetrate into surface and underground waters.

Manganese can exist in the environment in a more soluble form (Mn²⁺) and/or in a less soluble form (Mn³⁺). High levels of dissolved manganese can be found in acidic waters. Manganese occurs naturally in the earth's crust, making up 0.085% of it.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 10/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

12.3 Permanence and degradability

Biotransformation of manganese compounds by microorganisms is an important process in surface and groundwater (1). Insoluble manganese compounds ($^{3+}$) and ($^{4+}$) in sediments can be reduced by manganese-reducing bacteria to soluble compounds with the power ($^{2+}$) (1). Dissolved manganese ($^{2+}$) passes from the sediments into the water(1). Dissolved oxygen or manganese-oxidizing bacteria oxidize dissolved manganese ($^{2+}$) in the aerobic layer to insoluble manganese components ($^{3+}$) or ($^{4+}$).

12.4 Bioaccumulative potential

None

12.5 Results of PBT and vPvB assessment

The substance does not meet the criteria for classification as a PBT or vPvB substance.

12.6 Other adverse effects

No other adverse effects detected.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Large pieces of material can be recycled or preserved and sold as scrap metal. If necessary, take the material to an approved landfill. Contact the manufacturer for additional information. Collect and reuse if possible.

Disposal of MC FeMn must be in accordance with local and national legislation.

14. TRANSPORT INFORMATION

MC FeMn **is not** classified as dangerous in terms of ADR (road transport), RID (rail transport), IMDG (sea transport) and ICAO-TI/IATA-DGR (air transport).

MC FeMn is usually shipped in bulk. On request, it is possible to pack in containers and big bags.

It is advisable to prevent the material from getting wet during transport.

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 11/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

15. REGULATORY INFORMATION

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

GHS - UN Globally Harmonized System of Classification and Labeling of Chemical Substances (GHS):
According to Chapter 1.5.2 of the UN Globally Harmonized System of Classification and Labeling of Chemical Substances (GHS), safety data sheets (SDS) are required only for substances and mixtures that meet the harmonized criteria for endangering safety, health and the environment. This product does not meet these criteria.

EU CLP - CLP Regulation on classification, labeling and packaging of chemical substances and mixtures:

According to Article 59(2)(b) EC no. 1272/2008 (CLP), regulating Article 31(1) of the REACH regulation, safety data sheets (SDS) are required only for substances and mixtures/special preparations that meet the criteria for endangering safety, health and the environment. Since this product does not meet the given criteria, a safety data sheet according to EC 453/2010 will not be issued. To provide information related to safety and health and environmental protection, product safety information will be provided instead.

EU REACH - Registration, evaluation and authorization of chemical substances:

According to Article 31(7) of the REACH Regulation, exposure scenarios resulting from the Chemical Safety Report (CSR) are required to be documented as an annex to the Safety Data Sheet. However, according to the REACH regulation Annex I, part 0. (Introduction), subsection 0.6. no. 4 and 5 such exposure scenarios are required only for substances and mixtures that are classified as dangerous. As this product is not classified as hazardous in the sense of CLP, the provision of exposure scenarios is not required." A chemical safety assessment was carried out for the main components of this substance. According to the REACH regulation, this substance does not require authorization.

15.2 Chemical safety assessment

There are no special regulations, restrictions and prohibitions.

16. FURTHER INFORMATION

These data are based on our current knowledge, but do not represent any guarantee of any particular product properties and do not establish any legally binding contractual relationships.

16.1 List of abbreviations used

DNEL:	no effect limit value
LC ₅₀ :	median value of the lethal concentration
LD ₅₀ :	median lethal dose value

PRODUCT SAFETY DATA SHEET

(Prepared according to Annex II of the EP and Council Regulation 1907/2006/EC and Commission Regulation (EU) 2020/878)

Number: KBU-OFZ-12-EN
Rev.6
Page 12/ 12
Release date: June 30, 2011
Date of revision: December 19, 2022

OEL: workplace exposure limit value
PBT: persistent, bioaccumulative and toxic substances
vPvB: very persistent, very bioaccumulative substances

Approved:

Ing. Milan Harcek

Technical director

Edited by:

Ing. Zuzana Bohúňová

Head of quality control