FERROSILICOMANGANESE (FeSiMn)

SAFETY DATA SHEET		
	Product	Silicomanganese alloy
	SDS #	2018/04/0006.01
	First issue date	22 Nov 2010
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In accordance with Annex II to Regulation (EC) 1907/2006, as amended by Regulation 453/2010

SECTION 1. IDENTIFICATION OF SUBSTANCE AND COMPANY	
1.1 Product Identifier	Ferrosilicomanganese (FeSiMn), Silicomanganese (SiMn), Medium Carbon Silicomanganese (MCSiMn).
1.2 Relevant identified uses of the substance and uses advised against	This product is used as raw material for the manufacture of various grades of stainless steel and specialty steel. No uses advised against.
1.3 Details of supplier of the safety data sheet	
1.3.1 Name of supplier or manufacturer	**Georgian Manganese LLC** 9, Sakarhno Str, Zestafoni, 2000, Georgia Office: 00-9955-772-34448
1.3.2 Person responsible in EU member state / Only Representative information	**Stalmag Sp.z o.o.** Hutnicza 2, Ruda Slaska, 41709, Poland Office: 00-48-327712801
1.4 Emergency telephone numbers	
103, +995-772-34448	**Manufacturer**
112, 141, +4314064343	**AUSTRIA Medical Emergency Centre, VIZ**
112, +32070245245	**BELGIUM Medical Emergency Centre, Centre Antipoisons**
112, 150, +35929154409	**BULGARIA Medical Emergency Centre, Toxicology Centre Inf.**
112, 199, +35722405609	**CYPRUS Medical Emergency Centre**
112, 155, +420224919293	**CZECH REPUBLIC Emergency Centre, Toxicology Centre**
112, +4582121212	**DENMARK Medical Emergency Centre, Toxicology Centre**
112, +3726287400	**ESTONIA Medical Emergency Centre, Toxicology Centre**
112, 15, +358409471977	**FINLAND Medical Emergency Centre, Toxicology Centre**
112, 18, +330140054848	**FRANCE Medical Emergency Centre, Toxicology Centre**
112, +4903019240	**GERMANY Emergency Centre, Inst. f. Toxikologie**
112, +302106479407	**GREECE Medical Emergency Centre**
112, 104, +3614766464	**HUNGARY Emergency Centre, Inst. of Chemical Safety**
112, +3545912000	**ICELAND Emergency Centre, REACH-CLP Centre**
112, 999, +35316147125	**IRELAND Medical Emergency Centre**
112, 113, +3906910951	**ITALIA Emergency Centre, Toxicology Centre**
112, 03, +37167032028	**LATVIA Emergency Centre, CLP Centre**
112, +4232366195	**LIECHTENSTEIN Medical Emergency Centre**
112, +37052362052	**LITHUANIA Medical Emergency Centre**
112, +352425991600	**LUXEMBOURG Medical Emergency Centre**
112, 196, +35625450000	**MALTA Medical Emergency Centre, Mater Dei Hospital**
112, +31887558561	**NETHERLANDS Medical Emergency Centre, NVIC**
113, +4722591300	**NORWAY Medical Emergency Centre, Poison Inf. Centre**
112, 999, +48422538424	**POLAND Medical Emergency Centre, CLP Helpdesk**
112, 961, +351808250143	**PORTUGAL Medical Emergency Centre, CIAV**

112, +40213183606	**ROMANIA Emergency Centre, Biroul de Inf. Toxicologica**
112, 155, +421254774166	**SLOVAKIA Medical Emergency Centre**
112, +38614786051	**SLOVENIA Medical Emergency Centre**
112, 061, +34865636832665	**SPAIN Medical Emergency Centre**
112, 144, +4608331231	**SWEDEN Medical Emergency Centre**
112, 999	**UNITED KINGDOM Medical Emergency Centre**

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance	This product does not meet the classification requirements of the current European legislation on classification and labeling that are applicable for substances and mixtures.
2.2. Label elements	This product is not hazardous. Labeling is not required.
2.3 Other Hazards	Though not considered to be hazardous, material should be handled with acceptable safe methods of industrial hygiene. See section 8 for pers. protection.
During handling	If a significant amount of dust is present, precautions should be taken to limit this exposure through normal control procedures such as local exhaust ventilation (LEV) or respiratory protective equipment (RPE).
During use	Fumes may be produced during the melting operations. Manganese may be present in these fumes in oxidized forms, some of which maybe hazardous.

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

3.1 Substances

FERROSILICOMANGANESE is a metallic alloy (special preparation) based on

Component	EC number	CAS number	REACH Registration Number*	Classification (Directive 67/548/EEC)
Manganese* (Mn)	231-105-1	7439-96-5	01-2119449803-34-XXXX**	None
Silicon (Si)	231-130-8	7440-21-3	01-2119480401-47-XXXX**	None
Iron* (Fe)	231-096-4	7439-89-6	01-2119462838-24-XXXX**	None
Carbon (C)	231-153-3	7440-44-0	Not applicable as impurity	None

***** metal in an alloy

3.2 Composition and Ingredients

Main components : Mn – 63,0 - 76,0%; Si – 15,0-19,0%;

Impurities : Carbon - 1,5-2,0%; Sulphur*** - 0,02%; Phosphorus*** - 0,30-0,50%

Other Components: Remaining components of this product are proprietary, non-hazardous and/or are present at concentrations below reportable limits.

Additional Information: Amounts indicated are typical and do not represent a specification.

** - Last 4 digits of the registration numbers are omitted due to the confidentiality issues. Stalmag Sp.z o.o. (OR) is committing to provide the full numbers upon further legitimate request.

*** - ignore in description as impurity <1%

SECTION 4: FIRST AID MEASURES	
4.1 Description of first aid measures	
Inhalation	Move the person to fresh air - if respiratory problem persists, seek medical attention. In the event of inhalation of dust or powder, supply fresh air and provide artificial respiration if not breathing. If breathing is difficult give oxygen.
Skin contact	Wash with water and soap. After skin contact with dust or powder rinse affected area with water.
Eye contact	Wash with water to remove dust. After eye contact with dust or powder rinse opened eye for several minutes under running water. Seek medical attention if discomfort persists.
Ingestion	No known effects.
4.2 Most important symptoms and effects, both acute and delayed	This product is considered as non-hazardous.
4.3 Indication of any immediate medical attention and special treatment needed	No relevant information has been identified.
SECTION 5: FIRE-FIGHTING MEASURES	
5.1 Extinguishing media	Ferrosilicomanganese is not combustible. Fires should be extinguished using extinguishing powder and/or dry send. Do not use water or halogenated extinguishing media.
5.2 Special hazards arising from the substance or mixture	Ferrosilicomanganese is not combustible. Irritating or toxic gases may be generated by thermal decomposition of Ferrosilicomanganese. Finely divided metallic dust or powder may form an explosive mixture with air.
5.3 Advice for fire-fighters	Ferrosilicomanganese is not combustible. Wear suitable personal protective equipment (including self-contained breathing apparatus and full protective clothing) when extinguishing fires.
SECTION 6: ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures	Eye protection and respirators should be worn were dust is a potential hazard. Gloves should be worn when handling this material because of the risk of contact with sharp particles. When dealing with powders avoid generating dust and remove all sources of ignition.
6.2 Environmental precautions	There are no special procedures for this material.
6.3 Methods and material for containment and cleaning up	Collect spillage in a closed container. Follow good housekeeping. Avoid excessive dust generation. Material may be reclaimed for re-use. Spills should be contained and recovered mechanically if possible. Collect dust or particulates using a vacuum cleaner with a HEPA filter.

SECTION 7: HANDLING AND STORAGE	
7.1 Precautions for safe handling	The product is a heavy and dense material. Protective equipment should be worn when handling the material. Gloves should be worn as sharp particles may pierce the skin. Prevent formation of dust and wear appropriate personal protective equipment to minimize exposure when handling powders. Safety goggles and respirators should be worn where dust occurs. When handling powders take precautions to prevent the build-up of static electricity by earthing equipment/containers.
7.2 Conditions for safe storage, including any incompatibilities	The product is stable in storage. Keep material dry if used in high temperature applications in contact with molten metal. If not protected from weathering, a slight tarnishing may occur to the surface of the material, which is non-toxic and does not in any way detract from the properties and quality of the material. Store away from acids and oxidizing agents.
7.3 Specific end use(s)	See section 1.2 above

SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION	
8.1 Control parameters	
8.1.1 National Occupational Exposure Limit (OEL) values and/or Biological Limit Values (BLV)	
Ingredient name	**Occupational exposure limits**
Europe (manganese)	ACGIH TLV (United States, 1/2004). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. See Notice of Intended changes. TWA: 0.2 mg/m3 8 hour(s). Form: All forms
Austria (manganese)	BMWA_MAK (Austria, 4/2004). STEL: 2 mg/m3 4 times per shift, 15 minute(s). Form: Inhalable frac. TWA: 0.5 mg/m3 8 hour(s). Form: Inhalable fraction
Belgium (manganese)	Lijst Grenswaarden / Valeurs Limites (Belgium, 12/2003). TWA: 0.2 mg/m3 8 hour(s). Form: All forms
Denmark (manganese)	Arbejdstilsynet (Denmark, 10/2002). GV: 0.2 mg/m3 8 hour(s). Form: All forms GV: 0.1 mg/m3 8 hour(s). Form: Respirable fraction
France (manganese)	INRS (France, 6/2004). Notes: Advisory VME: 1 mg/m3 8 hour(s). Form: All forms
Finland (manganese)	Työterveyslaitos (Finland, 3/2002). TWA: 0.5 mg/m3 8 hour(s). Form: All forms
Germany (manganese)	MAK-Werte Liste (Germany, 7/2004). TWA: 0.5 mg/m3 8 hour(s). Form: Inhalable fraction TRGS900 MAK (Germany, 8/2004). Spitzenbegrenzung: 2 mg/m3 15 minute(s). Form: Inhalable fraction TWA: 0.5 mg/m3 8 hour(s). Form: Inhalable fraction

Norway (manganese)	Arbeidstilsynet (Norway, 10/2003). AN: 2.5 mg/m3 8 hour(s). Form: All forms
Netherlands (manganese)	Nationale MAC-lijst (Netherlands, 3/2004). Notes: Legal TGG 15 min: 3 mg/m3 15 minute(s). Form: All forms TGG: 1 mg/m3 8 hour(s). Form: All forms
Switzerland (manganese)	SUVA (Switzerland, 11/2004). Notes: not temporary MAK: 0.5 mg/m3 8 hour(s). Form: Inhalable fraction
Spain (manganese)	INSHT (Spain, 1/2004). VLA-ED: 0.2 mg/m3 8 hour(s). Form: All forms
Sweden (manganese)	AFS (Sweden, 7/2000). NGV: 0.2 mg/m3 8 hour(s) Form: Respirable fraction NGV: 0.4 mg/m3 8 hour(s) Form: Total
South Africa (manganese)	Occupational Health & Safety Act (1993). Hazardous Chemical Substances Regulations, 1995. Occupational Exposure Limits - Recommended Limits (South Africa, 1995). OEL-RL: 5 mg/m3 8 hour(s). Form: Dust & compounds
United Kingdom (manganese)	EH40-WEL (United Kingdom (UK), 1/2005). TWA: 0.5 mg/m3 8 hour(s). Form: All forms
8.1.2 Monitoring procedures	In accordance with Directives 80/1107/EEC and 88/642/EEC. No specific recommendations.
8.1.3 Air contaminants when using	See sections 2.3 and 10 of this SDS.

8.1.4 DNEL and PNEC

Substance	DNEL	PNEC
Manganese (metallic)	0.2 mg/m3 (inhalable, factor > 5µ) 1.4 mg/kg bw/day (dermal) 1.5 mg/m3 (respirable fraction ≤ ≤ 5µ)	Freshwater - 0.034 mg/L Marine water - 0.0034 mg/L Sediment (freshwater): 3.3 mg/kg sediment dw Sediment (marine): 0.34 mg/kg sediment dw Soil - 3.4 mg/kg
Iron (metallic)	10 mg/m3 (inhalable), 3 mg/m3 (respirable)	not required and cannot technically be calculated
Silicon	10 mg/m3 (inhalable)	Marine - 1.6 mg/L Freshwater - 10.0 mg/L.
Ferrosilicomanganese alloys	**0.27 mg/m3 (inhalable)** **0.0055 mg/kg bw/day (dermal)**	**Freshwater - 0.047 mg/L** **Marine water - 0.0049 mg/L** **Sediment (freshwater): 4.6 mg/kg**

8.2 Exposure controls	
8.2.1 Appropriate engineering controls	Local exhaust ventilation (LEV)
8.2.2 Individual protection measures, such as personal protective equipment	
Occupational exposure controls	Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit

Respiratory protection	Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary
Eye protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts
Skin protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product
Thermal hazards	Not identified
8.2.3 Environmental exposure controls	Do not wash spilled materials into drainage system, material may block drains.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Appearance	Metallic silver grey lumps, chips or fine material
Odour	No odour
Odour threshold	Not applicable as there is no odour
pH	Not relevant
Melting point	>1250 C
Boiling point	2100C – 2400C
Flash point	Not relevant
Evaporation rate	Not relevant
Flammability	Not flammable
Upper/lower flammability or explosive limits	Not relevant
Vapour pressure	Not relevant
Vapour density	Not relevant
Relative density	5.8 – 8.0 t/m3
Solubility	Insoluble in water
Partition coefficient: n-octanol/water	Not relevant
Auto-ignition temperature	Not relevant
Decomposition temperature	Not relevant
Viscosity	Not relevant
Explosive properties	No explosive properties
Oxidizing properties	Not oxidizing properties
9.2 Other information	
Bulk density	2.8 – 4.0 t/m3

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	The product does not contain reactive functionalities.
10.2 Chemical stability	The product is chemically stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
10.3 Possible hazardous reactions	
10.4 Conditions to avoid	Fine dust clouds may form explosive mixtures with air.
10.5 Materials to avoid	Reactive or incompatible with the following materials: oxidizing materials, acids and moisture.
10.6 Hazardous decomposition products	Some metallic oxides

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects.

(a) acute toxicity;

Ingredient name	Test	Result	Route	Species
manganese	LD50	2000 mg/kg 5.14 mg/L air	Oral Inhalation	Rat
iron	LD50	30000 mg/kg	Oral	Rat
silicon	LD50	50000 mg/kg	Oral	Guinea pig
FeSiMn	**LD50**	**2750 mg/kg** **7.14 mg/L air**	**Oral** **Inhalation**	**Recalculation**

(b) skin corrosion/irritation;	Not corrosive or irritant
(c) serious eye damage/irritation;	Typical of a nuisance dust
(d) respiratory or skin sensitization;	Not sensitizing
(e) germ cell mutagenicity;	Not mutagenic
(f) carcinogenicity;	Not carcinogenic
(g) reproductive toxicity;	Not toxic for reproduction
(h) STOT-single exposure;	No STOT single exposure
(i) STOT-repeated exposure;	No STOT repeated exposure
(j) aspiration hazard.	No aspiration hazard

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Ingredient name	Test	Period	Result	Species
manganese	EC50	48 hour(s)	1.6 mg/L	Daphnia magna
iron	LC50	48 hour(s)	56 mg/L	Rat
silicon	LC50	48 hour(s)	190 mg/L	Rat

12.2 Persistence and degradability	Not relevant
12.3 Bioaccumulative poten-al	None
12.4 Mobility in soil	Insignificant solubility in water, immobile
12.5 Results of PBT and vPvB assessment	Not relevant
12.6 Other adverse effects	None identified

SECTION 13: DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	Non-hazardous waste Recycle, if possible. The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
13.2 Waste classification	Not applicable
SECTION 14: TRANSPORTATION INFORMATION	
14.1. UN number	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.2. UN proper shipping name	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.3. Transport hazard class(es)	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.4. Packing group	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.5. Environmental hazards	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.6. Special precautions for user	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	The material is not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).
SECTION 15: REGULATORY INFORMATION	
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture	No labeling is required. No risk or safety phrases are required. Refer to European Directives 67/548/EEC, 99/45/EC, 91/155 EEC and 93/112/EC Risk and Safety phases: intermediate Ferrosilicomanganese contains manganese in the metallic (zero valent) state.
15.2 Chemical Safety Assessment	No chemical safety assessment has been carried out because the substance is not classified as hazardous.

SECTION 16: OTHER INFORMATION

Additional advice on specific questions can be obtained from Stalmag Sp.z o.o

Precautionary notes:

During melting, pickling and welding stages (strongly oxidizing conditions), water soluble hexavalent manganese and oxides of metals may be present in the effluent fumes. Suitable precautions should be taken to minimize exposure of personnel to such fumes.

Any moisture in the material should be regarded as an explosion hazard if it is to be used in high temperature environment.

Disclaimer

This Safety Data Sheet is specifically designed to comply with the requirements of the EU Regulation No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 (REACH) and the corresponding country law, and may not comply with the requirements of any other regulations for safe product handling.

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication, however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Stalmag Sp.z o.o. make no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

No liability can be accepted in respect of the use of Ferrosilicomanganese products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.