

## MATERIAL SAFETY DATA SHEET

Date of formation / date of updating: 01.10.2003 / 01.12.2010

### 1. IDENTIFICATION OF SUBSTANCE / PREPARATION AND IDENTIFICATION OF ENTERPRISE

#### 1.1. Identification of substance or preparation

#### **Ferrosilicon FeSi**

**REACH : 01-2119485286-28-0021**

#### 1.2. Application of substance / preparation

Ferrosilicon is used as a deoxidant and an alloying component in the production of steel as well as a modifier in the production of cast iron.

#### 1.3. Identification of enterprise

Huta „Łaziska” S.A.  
ul. Cieszyńska 23  
43-170 Łaziska Górne

#### 1.4. Emergency phone number

Phone: +48 (32) 3247102, +48 (32) 2247100  
Fax: +48 (32) 2241523

### 1. IDENTIFICATION OF THREATS

By observing the storage recommendations (point 7), the product does not present any threat to the health and environment.

Inflammable and harmful gases may be formed in contact with humidity, acids or bases (point 10).

Dust suspended in the air, may under certain conditions, be the cause of explosion.

### 3. COMPOSITION / INFORMATION ON COMPONENTS

FeSi (45 – 80%)

Dangerous components – none

Symbol – none

Si content: 45÷80%

Maximum content:

Al – 3,00%

Ti – 0,30%

P – 0,05%

Cr – 0,50%

Mn – 0,80%

S – 0,05%

Ca – 2,50%

C – 0,20%

Formula	No CAS	No EC (EINECS)
FeSi	12022-95-6	234-670-2
FeSi <sub>2</sub>	12022-99-0	234-671-8
Si	7440-21-3	231-130-8
Fe	7439-89-6	231-096-4

#### **4. FIRST AID**

On contact with skin; rinse with water with addition of mild detergent.  
On contact with eyes; rinse eyes with water,  
On consumption; cause vomiting  
On inhalation; take out person into fresh air.  
On obstinate ailments or in case of poisoning (point 11), call for medical protection, and take out person from area of dust occurrence.

#### **5. LINE OF CONDUCT IN CASE OF FIRE**

Extinguishing media; dry sand, Co<sub>2</sub>, dry extinguishing powder.  
Dry ferrosilicon occurring in the form of lumpy material and in the form of a granulated product is not a combustible substance.  
Ferrosilicon dust mixed in the air may under certain conditions cause explosion.

#### **6. LINE OF CONDUCT IN CASE OF UNINTENDED LIBERATION INTO THE ENVIRONMENT**

The material in the form of dust should be kept in appropriate containers. Moistened products should be separated from dry ones and after their collection they should not be kept in closed containers.

#### **7. LINE OF CONDUCT WITH SUBSTANCE / PREPARATION AND ITS STORAGE**

##### **7.1. Line of conduct with substance / preparation**

Avoid formation and collection of dust as well as its inhalation.  
Avoid sources of ignition at places with high dust concentrations.

##### **7.2. Storage**

Ferrosilicon must be kept in a dry and well ventilated place, far from acids and bases.

#### **8. INSPECTION OF EXPOSURE AND MEANS OF INDIVIDUAL PROTECTION**

At an amount of free crystalline silica (SiO<sub>2</sub> WWK) below 2% the NDS of dust is equal to 10 mg/m<sup>3</sup> (Regulation of the Minister of Labour and Social Policy from the 29<sup>th</sup> November 2002 in the matter of the highest permissible concentrations and intensities of agents, which are harmful to the health in the place of employment (Journal of Law No. 217, pos. 1833).

- a) Protection of airways  
ensure good ventilation and at places of insufficient ventilation use dust - masks
- b) Protection of hands  
use protective gloves
- c) Protection of eyes  
rinse with stream of water

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1. General information**

- Form - lumpy material, granulated product, screened fractions, cyclone dust
- Colour - silver - grey - metallic
- Odour - none
- Solubility - is not soluble in water
  - soluble in a mixture of mineral acids

### **9.2. Important information concerning the health, safety and environment**

- Melting point depending on the content of Si 1205 ÷ 1330°C
- Special gravity depending on the content of Si 3,0 ÷ 5,4 g/cm<sup>3</sup>

## **10. STABILITY AND REACTIVITY**

### **10.1. Conditions to be avoided**

In places with high dust concentrations avoid the formation of sparks and other sources of ignition. Dusts suspended in the air with concentrations above 100-300 g/m<sup>3</sup> may provoke explosion. Taking into consideration the size of the elementary particle – the ignition sensitivity and the violence of the explosion will decrease with the drop of the Si/Fe ratio. Dust with the ratio Si/Fe ≤ 2 and the elementary particle diameter > 10 μm does not constitute any threat of explosion.

### **10.2. Factors to be avoided**

Avoid contact with such substances as; water/humidity, acids, bases. Reaction with hydrogen fluoride (HF) or nitric acid leads to the formation of toxic gases, such as silica tetrafluoride (SiF<sub>4</sub>) or nitric oxides (NO<sub>x</sub>)

## **11. Dangerous decomposition products**

Dangerous decomposition products; highly inflammable hydrogen (H<sub>2</sub>) and very toxic gases – hydrogen phosphide, arsenous hydride may be formed, if FeSi will be in contact with humidity, acids or bases. Reaction with hydrogen fluoride (HF) or with nitrous acid HNO<sub>3</sub> leads to the formation of toxic gases, such as silica tetrafluoride (SiF<sub>4</sub>) or nitrogen oxides (NO<sub>x</sub>).

## **11. TOXICOLOGICAL INFORMATION**

Inhalation; fine dust may irritate and dry up the mucous membranes. Hydrogen phosphide / arsenous hydride may be absorbed from the dust deposited on the mucous membrane. Hydrogen phosphide irritates the mucous membranes, central nervous system and may cause pulmonary oedema.

Acute immortal poisoning with hydrogen phosphide renders temporary effects, among others such as; headache, malaise, vomiting, abdominal pain, cough and breathing difficulties.

On contact with skin; dust can irritate the skin.

On contact with eyes; dust can irritate eyes and dry up.

Protracted influence; - prolonged exposure to the actions of hydrogen phosphide may lead to chronic effect such as difficulties in the locomotive faculty and problems with the speech.

## **12. ECOLOGICAL INFORMATION**

The product is not described as dangerous to the environment.

The Eco – toxicity: CL<sub>50</sub> / DL<sub>50</sub> has not been defined, it has no significance for the inorganic and isolable substance.

### **13. LINE OF CONDUCT WITH DISCARDS**

The discard from the ferrosilicon is not classified as a dangerous discard.

The material should be recovered and recycled for processing, wherever it is possible.

The proceedings with discards should be subordinated to the requirements of the Decree

from the 27<sup>th</sup> April of the year 2001 on discards Journal of Law No. 62, pos. 628 with later amendments and of the Decree from the 27<sup>th</sup> April 2001, Right of Environment Protection, (Journal of Law No. 62, pos. 627, with later amendments).

### **14. INFORMATION ON THE TRANSPORT**

The chemical composition (described in point 3) testifies to the fact, that the shipment and the material in the packaged form or in bulk are not dangerous according to the marking IMDG, ICAO/IATA and ADR/RID.

UN No. – 1408

IMO/BC-Code – (30-90)%Si, class 4.3

The test conducted according to 2.2.43.1.7 based on results of research carried out acc. Manual of Tests and Criteria, Part III chapter 33.4, has shown that FeSi does not meet the requirements of the criteria of Class 4.3 in conformity with the regulations on the transport of dangerous products, in vehicles (ADR), by rail (RID) or on the sea – (IMGD Code).

### **15. INFORMATION ON LEGAL RULES**

Classification of product and marking:

Symbol – is not subject of classification

return R – none

return S – none

Regulation of the Minister of Health from the 13th November 2007 on the card of characteristic features (Journal of Law 2007, No. 215, pos. 1588).

Regulation (WE) No. 1907/2006 of the European Parliament and Council from the 18<sup>th</sup> December 2006.

Regulation of the Minister of Labour and Social Policy from the 29th November 2002 on the highest permissible concentrations and intensities of harmful agents for the health at the work place (Journal of Law No. 217, pos. 1833).

Statute from the 27th April 2001 on discards (Journal of Law No. 62 pos. 628 with later amendments).

Statute from the 27<sup>th</sup> April 2001, Law on Environmental Protection (Journal of Law No. 62 pos. 627 with later amendments).

Regulation of the Minister of Health from the 28th September 2005 on the list of dangerous substances together with their classification and marking (Journal of Law 05 No. 201 pos. 1674).

Regulation of the Minister of Health from the 2<sup>nd</sup> September 2003 on the criteria and method of classification of chemical substances (Journal of Law 2003 No. 171 pos. 1666 with later amendments).

### **16. OTHER INFORMATION**

The present card is the property of the Huta "Łaziska" S.A. Steel – Works "Łaziska" Joint Stock Company and presents a description of the product of the Steel – Works on the basis of the knowledge and experience owned by the Company.

