SAFETY DATA SHEET

# Ferrochrome

Vargön Alloys AB

Revision date: 2011-02-11
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*In accordance with Annex II to Regulation (EC) 1907/2006, as amended by Regulation 453/2010.*

## 1 IDENTIFICATION OF SUBSTANCE AND COMPANY

### 1.1 Product Identifier

- Ferrochrome (FeCr)
- Ferrochromium
- High Carbon Ferrochrome
- Charge Chrome
- CAS No 11114-46-8
- Reach Reference No

  Chromium 01-2119485652-31-0009
  Iron 01-2119462838-24-0052

### 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, high chromium casting, and special steel. No uses advised against.

### 1.3 Details of supplier of the safety data sheet

Vargön Alloys AB

### 1.3.1 Name of manufacturer

Vargön Alloys AB
468 80 Vargön
+46 521 277 300

### 1.3.2 Person responsible in EU member state

Evalotta Stolt
Vargön Alloys AB
468 80 Vargön
+46 521 27 73 37

### 1.4 Emergency telephone number

Call your local emergency hotline.

## 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 labelling that are applicable for substances.

## 2.2 Label elements

This product is not hazardous. Labelling is not required.

## 2.3 Other Hazards

### 2.3.1 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)

### 2.3.2 During use

Fumes may be produced during the melting operations. Chromium may be present in these fumes in oxidized forms, some of which maybe hazardous. See guidance on safe use.

# 3 COMPOSITION INFORMATION ON INGREDIENTS

## 3.1 Substances

| Component | CAS Nr | EINECS/ELINCS | Amount (%) | Symbol | R-Phrases |
|---|---|---|---|---|---|
| **Chromium (metallic)** | 7440-47-3 | 231-157-5 | 50 -53% | Cr | None |
| **Iron (metallic)** | 7439-89-6 | 231-096-4 | 34-37% | Fe | None |
| **Carbon** | 7440-44-0 | 231-153-3 | 6-9% | C | None |
| **Silicon** | 7440-21-3 | 231-130-8 | 1-6% | Si | None |
| **Nickel** | 7440-02-0 | 231-111-4 | 0.1-0.4% | Ni | None at this concentration range |

**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.

## 4 FIRST AID MEASURES

### 4.1 Description of first aid measures

Move the person to fresh air - if respiratory problem persists, seek medical attention.

#### 4.1.1 Inhalation

Move the person to fresh air - if respiratory problem persists, seek medical attention.

#### 4.1.2 Skin contact

Wash with water and soap.

#### 4.1.3 Eye contact

Wash with water to remove dust. Seek medical attention if discomfort persists.

### 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.

## 5 FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media

Ferrochrome is not combustible.

### 5.2 Special hazards arising from the substance or mixture

Ferrochrome is not combustible.

### 5.3 Advice for fire-fighters

Ferrochrome is not combustible.

## 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.

## 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.

# 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. Safety goggles and respirators should be worn where dust occurs

## 7.2 Conditions for safe storage, including any incompatibilities

The product is stable in storage and should be kept dry. 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.

## 7.3 Specific end use(s)

See section 1.2 above.

# 8 EXPOSURE CONTROL / PERSONAL PROTECTION

## 8.1 Control parameters

### 8.1.1 National limit values

Users must always consult their national or regional regulatory authorities for advice on the current legal limits applicable to them. They should further check whether these limits are legally binding or only recommended guidelines.

### 8.1.2 DNEL and PNEC

| Substance | DNEL | PNEC |
|---|---|---|
| Chromium | 0.5 mg Cr / $m^3$ | 4.7 µg / l (CrIII) |

## 8.2 National Exposure controls

### 8.2.1 Appropriate engineering controls

Local exhaust ventilation (LEV).

### 8.2.2 Individual protection measures, such as personal protective equipment

#### 8.2.2.1 Eye/face protection

Goggles / face shield if dust is a hazard.

#### 8.2.2.2 Skin

Long sleeves overalls; gloves for hands, where applicable.

#### 8.2.2.3 Respiratory

If exposure is above the Occupational Health limits, respirators as approved by national authorities should be used.

#### 8.2.2.4 Thermal hazards

Not identified.

### 8.2.3 Environmental exposure controls

Do not wash spilled materials into drainage system, material may block drains.

## 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 | >1500 ℃ |
| Boiling point | 2700C – 3000 ℃ |
| 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 | 6 – 9 t/m$^3$ |
| 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 |
| Oxidising properties | Not oxidizing properties |

## 9.2 Other information

| | |
|---|---|
| Bulk density | 3.2 – 3.7 t/m$^3$ |

# 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

The product can react with some acids with the evolution of hydrogen.

The product can react with molten alkalis with the formation of compounds containing chromium (VI).

It is known that high temperature processes including production and welding of chromium and chromium-containing alloys can lead to generation of fumes containing chromium (VI). Although the precise identity of the chromium (VI) substances present has not been identified it is important to recognize that several substances containing chromium (VI) have been classified as carcinogenic, mutagenic, toxic for reproduction and dangerous for the environment. It is therefore essential that workplace and releases to the environment associated with these activities are monitored to ensure compliance with national and/or Community legislative limits. The European Confederation of Iron and Steel Industries (Eurofer), the European Association of Metals (Eurometaux) and the European Welding Association (EWA) jointly developed Safe Use Recommendations for welding metals and alloys, compiled in a document that is available for REACH purposes (www.eurofer.be).

## 10.4 Conditions to avoid

Once molten, charge chrome produces fumes. Dust suspended in air could cause dust explosions.

## 10.5 Incompatible materials

The product can react with some acids with the evolution of hydrogen.

The product can react with molten alkalis with the formation of compounds containing chromium (VI) - see 10.3 above.

## 10.6 Hazardous decomposition products

See section 10.3 and 10.5

# 11 TOXICOLOGICAL INFORMATION

## 11.1 Information on toxicological effects

| | |
|---|---|
| (a) acute toxicity; | No acute toxicity |
| (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 |

# 12 ECOLOGICAL INFORMATION

## 12.1 Toxicity

Not ecotoxic.

## 12.2 Persistence and degradability

Not relevant.

### 12.3 Bioaccumulative potential

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.

## 13 DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Material is non hazardous.

Disposal of waste should be undertaken by a licensed waste contractor in accordance with appropriate national and local regulations.

## 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).

## 15 REGULATORY INFORMATION

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

No labelling 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 Carbon Ferrochrome contains chrome 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.

## 16 OTHER INFORMATION

Reference to ICDA Chromium Industry Guidelines: available through following ICDA web link (http://www.icdachromium.com/pdf/publications/ICDAGuidelines.pdf)

Additional advice on specific questions can be obtained from Vargön Alloys AB

Precautionary notes:
During melting, pickling and welding stages (strongly oxidizing conditions), water soluble hexavalent chromium and oxides of metals may be present in the effluent fumes. Suitable precautions should be taken to minimize exposure of personnel to such fumes. See section 10.3 above.
Any moisture in the material should be regarded as an explosion hazard if it is to be used in high temperature