

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product form:	Mixture
Product name:	High Carbon Ferrochrome
Type of product:	Alloy
Other means of identification:	FeCr, Ferrochrome, Ferrochromium, High Carbon Ferrochrome, HCFeCr
Chromium Reach Reference No:	1-2119485652-31-0009
Iron Chromium Reach Reference No:	1-2119462838-24-0052
CAS No:	1114-46-8

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

1.2.1. Relevant identified uses

Use of the substance/mixture: Manufacture of basic metals, including alloys. This product is used as raw material for the production of various grades of stainless steel, such as high-chromium cast iron and special steel

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier

1.3.1 Name of manufacturer

Vargön Alloys AB
468 80 Vargön
Sweden
Tel:+46 521 277 300

1.3.2 Person of responsible in EU member state

Annelie Papadopoulos
Vargön Alloys AB
468 80 Vargön
Tel:+46 521 27 74 59
Annelie.papadopoulos@vargonalloys.se

1.4. Emergency telephone number

Emergency number: Call your local emergency hotline.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified.

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 (and its amendments) on classification, labelling and packaging of substances and mixtures.

However, a safety data sheet is being supplied for it upon request as it contains a substance for which there is a Union workplace exposure limit.

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Labelling is not required.

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) according to Annex XIII of the REACH regulations.

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation. (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1%.

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 may be hazardous. See guidance on safe use.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixtures

Compound	Symbol	CAS-No	EINECS/ELINC	Amount%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Chromium	Cr	7440-47-3	231-157-5	50 – 71	Not classified
Iron	Fe	7439-89-6	231-096-4	20 – 37	Not classified
Carbon	C	7440-44-0	231-153-3;931-328-0	4 – 8	Not classified
Silicon	Si	7440-21-3	231-130-8;240-968-3	0 – 6	Not classified
Nickel	Ni	7440-02-0	231-111-4	0,3-0,65	None at this concentration ranges

Additional Information:

Amounts indicated are typical and do not represent a specification.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

4.1.1 *First-aid measures after inhalation*

Remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of breathing difficulties administer oxygen. If unconscious, place in the recovery position and seek medical advice. In case of excessive inhalation of fumes move the person to fresh air. Call for medical help.

4.1.2 *First-aid measures after skin contact*

Wash skin thoroughly with mild soap and water. If skin irritation occurs: Get medical advice/attention.

4.1.3 *First-aid measures after eye contact*

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Protect uninjured eye. Seek medical attention if discomfort persists.

4.1.4 *First-aid measures after ingestion*

If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. In case of accident or if you feel unwell, seek medical advice.

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 additional information available

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Ferrochrome is not combustible. Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Ferrochrome is not combustible.

5.3. Advice for firefighters

Ferrochrome is not combustible.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Eye protection and respirators should be worn where dust is a potential hazard. Avoid breathing dust.
Gloves should be worn when handling this material because of the risk of contact with sharp particles.

6.2. Environmental precautions

Do not discharge into drains or the environment.

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.

6.4. Reference to other sections

For further information refer to section:

8: "Exposure controls/personal protection". For disposal of residues refer to section

13: "Disposal considerations".

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Additional hazards when processed:	Chromium VI may be formed at elevated temperature processing operations.
Precautions for safe handling:	<p>The product is a heavy and dense material. Handle in accordance with good industrial hygiene and safety procedures. Protective equipment should be worn when handling the material.</p> <p>Gloves should be worn as sharp particles may pierce the skin. Wear suitable gloves. Avoid contact with skin and eyes.</p> <p>Avoid generation of dust. Safety goggles and respirators should be worn where dust occurs.</p>
Hygiene measures:	Do not eat, drink or smoke when using this product. Always wash hands and face immediately after handling this product, and once again before leaving the workplace.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Storage conditions

Store in a well-ventilated place. 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.

Incompatible products: Acids.

7.3. Specific end use(s)

See section 1.2 above.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Information in section below is only for information. 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.

Chromium (7440-47-3)

EU - Indicative Occupational Exposure Limit (IOEL)

Local name:	Chromium metal
IOEL TWA:	2 mg/m ³
Regulatory reference:	COMMISSION DIRECTIVE 2006/15/EC

Austria - Occupational Exposure Limits

Local name:	Chrommetall, anorganische Chrom(II)- und anorganische Chrom(III)-Verbindungen (unlöslich)
MAK (OEL TWA)	2 mg/m ³ (als Cr berechnet)
Remark:	Sh (für Cr(III)-Verbindungen)
Regulatory reference:	BGBl. II Nr. 238/2018 BGBl. II Nr. 156/2021

Belgium - Occupational Exposure Limits

Local name:	Chrome métal et composés inorganiques (à l'exception des composés Cr VI) # Chroom (metaal) en anorganische verbindingen (met uitzondering van Cr VI verbindingen)
OELTWA:	0.5 mg/m ³
Regulatory reference	Koninklijk besluit/Arrêté royal 11/05/2021

Bulgaria - Occupational Exposure Limits

OEL TWA	2 mg/m ³
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Cyprus - Occupational Exposure Limits

OEL TWA	2 mg/m ³
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Czech Republic - Occupational Exposure Limits

Local name:	Prach z chromu
PEL (OEL TWA)	0.5 mg/m ³ (dust)
Remark:	Prachy s převážně dráždivým účinkem.
Regulatory reference:	Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.)

Denmark - Occupational Exposure Limits

Local name:	Chrom, pulver og opløselige chromi- og chromosalte
OEL TWA	0.5 mg/m ³ (powder)
OEL STEL	1 mg/m ³ (powder)
Remark:	E (betyder, at stoffet har en EF-grænseværdi)
Regulatory reference:	BEK nr 202 af 21/02/2023

Estonia - Occupational Exposure Limits

Local name:	Kroom (metall) ja tema anorgaanilised ühendid, v.akroomhape ja kromaadid (arvutatud kroomile)
OEL TWA:	2 mg/m ³
Regulatory reference:	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)

Finland - Occupational Exposure Limits

Local name:	Kromi, metalli
HTP (OEL TWA)	0.5 mg/m ³ Cr
Regulatory reference:	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)

Finland - Biological limit values

Local name:	Kromi-(VI) ja sen yhdisteet
BLV:	0.2 µmol/l Parametri: Virtsan kromi - Näytteenottoajankohta: Työvaiheen tai työvuoron päätyttyä työviikon tai altistumisjakson loputtua

According to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878. Issue date: 6/9/2023 Revision date: 6/9/2023
Supersedes version of: 2/25/2016 Version: 2.0. 6/9/2023 (Revision date) EU - en 1/16. Revision date of document 2023-10-26.

Regulatory reference:	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)
France - Occupational Exposure Limits	
Local name:	Chrome (métal), composés de chrome inorganiques (II) et composés de chrome inorganiques (insolubles) (III)
VME (OEL TWA):	2 mg/m ³ (indicative limit)
Remark:	Valeurs règlementaires indicatives
Regulatory reference:	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
France - Biological limit values	
BLV:	0.01 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: augmented during shift (Background noise on non-exposed subjects (soluble aerosol)) 0.03 mg/g creatinine Parameter: Total Chromium - Medium: urine - Sampling time: end of shift at end of workweek (Background noise on non-exposed subjects (soluble aerosol))
Germany - Occupational Exposure Limits (TRGS 900)	
Local name:	Chrom und anorganische Chrom(II) und (III)-Verbindungen
AGW (OEL TWA)	2 mg/m ³ (except the one listed by name-inhalable fraction)
Peak exposure limitation factor:	1(I)
Remark:	EU - Europäische Union (Von der EU wurde ein Luftgrenzwert festgelegt: Abweichungen bei Wert und Spitzenbegrenzung sind möglich); 10 - Der Arbeitsplatzgrenzwert bezieht sich auf den Elementgehalt des entsprechenden Metalls
Regulatory reference:	TRGS900
Gibraltar - Occupational Exposure Limits	
OEL TWA	2 mg/m ³
Greece - Occupational Exposure Limits	
Local name:	Χρώμιο (μεταλλικό)
OEL TWA:	1 mg/m ³
Regulatory reference:	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name:	KRÓM (fém), SZERVETLEN KRÓM (II) és KRÓM (III) VEGYÜLETEK (nem oldható)
AK (OEL TWA):	2 mg/m ³
Remark:	i (ingerlő anyag, amely izgatja a bőrt, nyálkahártyát, szemet vagy mindhármát), sz (Túlérzékenységet okozó (szenzibilizáló) tulajdonságú anyag. Az anyagra érzékeny egyéneken „túlérzékenységen” alapuló bőr-, légzőrendszeri, esetleg más szervet/szervrendszert károsító megbetegedést okozhat), BEM (biológiai expozíciós mutató); EU2 (2006/15/EK irányelvben közölt érték); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkezik)
OEL chemical category	Sensitizer
Regulatory reference:	5/2020. (II. 6.) ITM rendelet - A kémiai kóros tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Hungary - Biological Exposure Indices	
Local name	Króm
BEI:	0.01 mg/g creatinine Biológiai expozíciós (hatás) mutató: króm - Biológiai minta: Vizeletben - Mintavétel ideje: m.v. (műszak végén) 0.022 μmol/mmol Creatinine Biológiai expozíciós (hatás) mutató: króm - Biológiai minta: vizeletben - Mintavétel ideje: m.v. (műszak végén) Regulatory reference 5/2020. (II. 6.) ITM rendelet - A kémiai kóros tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name:	Chromium metal
OEL TWA:	2 mg/m ³
OEL STEL:	6 mg/m ³ (calculated)

According to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878. Issue date: 6/9/2023 Revision date: 6/9/2023
Supersedes version of: 2/25/2016 Version: 2.0. 6/9/2023 (Revision date) EU - en 1/16. Revision date of document 2023-10-26.

Remark:	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference:	Chemical Agents Code of Practice 2021
Ireland - Biological limit values	
Local name:	Chromium VI and water soluble compounds
BMGV	25 µg/l Parameter: total chromium - Medium: urine - Sampling time: End of shift at end of workweek - Notations: B (Background) 10 µg/l Parameter: total chromium - Medium: urine - Sampling time: Increase during shift
Regulatory reference:	Biological Monitoring Guidelines (HSA, 2011)
Italy - Occupational Exposure Limits	
OEL:	TWA 0.5 mg/m ³
Latvia - Occupational Exposure Limits	
OEL TWA:	2 mg/m ³
Latvia - Biological Exposure Indices	
BEI:	10 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: end of shift; end of work week (population not subject to occupational exposure < 0.8 µg/L, in urine - < 0.01 µmol/L)
Lithuania - Occupational Exposure Limits	
IPRV (OEL TWA)	2 mg/m ³
Luxembourg - Occupational Exposure Limits	
OEL TWA	2 mg/m ³
Malta - Occupational Exposure Limits	
OEL TWA:	2 mg/m ³
Netherlands - Occupational Exposure Limits	
Local name:	Chroom
TGG-8u (OEL TWA):	0.5 mg/m ³ (metallic)
Regulatory reference:	Arbeidsomstandighedenregeling 2023
Poland - Occupational Exposure Limits	
Local name:	Chrom metaliczny
NDS (OEL TWA):	0.5 mg/m ³
Regulatory reference:	Dz. U. 2018 poz. 1286
Portugal - Indicative Occupational Exposure Limit (IOEL)	
Local name:	Crómio metálico, composto inorgânico de crómio (II) e compostos inorgânicos (III) (insolúveis)
IOEL TWA	2 mg/m ³
Regulatory reference:	Decreto-Lei n.º 1/2021 de 6 de janeiro
Portugal - Occupational Exposure Limits	
Local name:	Crómio metal e compostos de crómio (III), expressos em Cr
OEL TWA:	0.5 mg/m ³ (indicative limit value (Metal) OEL chemical category A4 - Not Classifiable as a Human Carcinogen
Remark:	A4 (Agente não classificável como carcinogénico no Homem)
Regulatory reference:	Norma Portuguesa NP 1796:2014
Romania - Occupational Exposure Limits	
OEL TWA:	2 mg/m ³ (metallic)
Romania - Biological limit values	
BLV	10 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: during working hours 30 µg/g creatinine Parameter: Chromium - Medium: urine - Sampling time: end of work week
Slovakia - Occupational Exposure Limits	
Local name	Chróm anorg. zlúč. chrómu (II) a (III) – nerozpuštné (ako Cr)
	NPHV (OEL TWA) [1] 2 mg/m ³
Regulatory reference:	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)

Slovenia - Occupational Exposure Limits

Local name:	krom – kovinski, anorganske kromove (II) spojine in anorganske kromove (III) spojine (netopne)
OEL TWA:	2 mg/m ³ (inhalable fraction)
OEL STEL:	2 mg/m ³ (inhalable fraction)
Remark:	EU Regulatory reference Uradni list RS, št. 72/2021 z dne 11.5.2021

Spain - Occupational Exposure Limits

Local name:	Cromo metal
VLA-ED (OEL TWA)	2 mg/m ³ (indicative limit value)
Remark:	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo).
Regulatory reference:	Límites de Exposición Profesional para Agentes Químicos en España 2023. INSHT

Sweden - Occupational Exposure Limits

Local name:	Krom, och oorg. (II, III)-föreningar (som Cr)
NGV (OEL TWA)	0.5 mg/m ³ (total dust)
Remark:	Remark 3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetarskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference:	Hygieniska gränsvärden (AFS 2018:1)

United Kingdom - Occupational Exposure Limits

Local name:	Chromium
WEL TWA (OEL TWA)	0.5 mg/m ³
WEL STEL (OEL STEL)	1.5 mg/m ³ (calculated)
Regulatory reference:	EH40/2005 (Fourth edition, 2020). HSE

United Kingdom - Biological limit values

Local name:	Chromium VI
BMGV:	10 µmol/mol creatinine Parameter: chromium - Medium: urine - Sampling time: Post shift
Regulatory reference:	EH40/2005 (Fourth edition, 2020). HSE

USA - ACGIH - Occupational Exposure Limits

Local name:	Metallic chromium, as Cr(0)
ACGIH OEL TWA	0.5 mg/m ³ (inhalable particulate matter)
Remark:	(ACGIH) TLV [®] Basis: Resp tract irr
Regulatory reference:	ACGIH 2023

USA - ACGIH - Biological Exposure Indices

Local name	Chromium
BEI	0.7 µg/l Parameter: Total chromium - Medium: urine - Sampling time: End of shift at end of workweek - Notations: Pop
Regulatory reference:	ACGIH 2023

Carbon (7440-44-0)

Austria - Occupational Exposure Limits

Local name:	Graphit (Alveolarstaub mit < 1% Quarz)
MAK (OEL TWA)	5 mg/m ³ (A)
MAK (OEL STEL)	10 mg/m ³ (A, 2x 60(Miw) min)
Regulatory reference:	BGBl. II Nr. 156/2021

Poland - Occupational Exposure Limits

Local name	Grafit syntetyczny
NDS (OEL TWA)	6 mg/m ³ frakcja wdychalna

According to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878. Issue date: 6/9/2023 Revision date: 6/9/2023
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Remark:	Frakcja wdychalna – frakcja aerozolu wnika ­ jąca przez nos i usta, która po zdeponowaniu w drogach oddechowych stwarza zagrożenie dla zdrowia.
Regulatory reference:	Dz. U. 2018 poz. 1286
Sweden - Occupational Exposure Limits	
NGV (OEL TWA)	3 mg/m ³
United Kingdom - Occupational Exposure Limits	
Local name:	Graphite
WEL TWA (OEL TWA)	10 mg/m ³ inhalable dust 4 mg/m ³ respirable
Regulatory reference:	EH40/2005 (Fourth edition, 2020). HSE
Silicon (7440-21-3)	
Belgium - Occupational Exposure Limits	
OEL TWA:	10 mg/m ³
Denmark - Occupational Exposure Limits	
Local name:	Silicium
OEL TWA:	10 mg/m ³
OEL STEL	20 mg/m ³
Regulatory reference:	BEK nr 202 af 21/02/2023
Estonia - Occupational Exposure Limits	
Local name:	Silikoon
OEL TWA	10 mg/m ³ 5 mg/m ³ (respirable dust)
Remark:	1 (Peentolm koosneb alla 2,5-mikromeetrise läbimõõduga osakestest, mis võivad jõuda koos sissehingatava õhuga kopsu alveoolidesse (respireeritav fraktsioon))
OEL chemical category	Carcinogenic substance respirable dust
Regulatory reference:	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3)
France - Occupational Exposure Limits	
Local name:	Silicium
VME (OEL TWA)	10 mg/m ³
Remark:	Valeurs recommandées/admises
Regulatory reference:	Circulaire du Ministère du travail (réf.: INRS ED 984, 2016)
Greece - Occupational Exposure Limits	
Local name:	Πυρίτιο
OEL TWA	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)
Regulatory reference:	Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Ireland - Occupational Exposure Limits	
OEL TWA	4 mg/m ³ (respirable dust) 10 mg/m ³ (total inhalable dust)
OEL STEL	30 mg/m ³ (calculated-respirable dust) 12 mg/m ³ (calculated-total inhalable dust)
Slovakia - Occupational Exposure Limits	
Local name	Silikón
NPHV (OEL TWA)	10 mg/m ³ inhalovateľná frakcia 4 mg/m ³ respirabilná frakcia
Regulatory reference:	Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.)
United Kingdom - Occupational Exposure Limits	
Local name:	Silicon
WEL TWA (OEL TWA):	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
WEL STEL (OEL STEL):	12 mg/m ³ (calculated-respirable dust)
WEL STEL (OEL STEL):	30 ppm (calculated-inhalable dust)
Regulatory reference:	EH40/2005 (Fourth edition, 2020). HSE

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. EXPOSURE CONTROLS

8.2.1. Appropriate engineering controls

Appropriate engineering controls: Use adequate general or local ventilation to keep airborne concentrations below the exposure limits.

8.2.2. Personal protection equipment:

Personal protective equipment: Gloves. In case of dust production: protective goggles.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

In case of dust production: protective goggles

8.2.2.2. Skin protection

Wear suitable protective clothing.

Wear suitable gloves tested to EN 374.

8.2.2.3. Respiratory protection

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

8.2.2.4. Thermal hazards

No additional information available

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

Physical state:	Solid
Colour:	Metallic silver grey lumps
Odour:	Odourless
Odour threshold:	Not available
Melting point:	> 1500 °C
Freezing point:	Not available
Boiling point:	2700-3000° C
Flammability:	Non flammable
Explosive limits:	Not applicable
Lower explosion limit:	Not applicable
Upper explosion limit:	Not applicable
Flash point:	Not applicable, solid
Auto-ignition temperature:	Not applicable
Decomposition temperature:	Not available
pH:	Not applicable, solid
pH solution:	Not available
Viscosity, kinematic:	Not applicable, solid
Viscosity, dynamic:	Not applicable, solid
Solubility:	Insoluble in water.
Organic solvent:	Virtually insoluble
Partition coefficient n-octanol/water (Log Kow):	Not applicable
Vapour pressure:	Not applicable, solid
Vapour pressure at 50°C:	Not available
Density:	6 – 9 g/cm ³
Relative vapour density at 20°C:	Not applicable, solid
Particle size:	Chips or fine material
Bulk density:	3.2 - 3.7 MT/m ³

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Relative evaporation rate (butylacetate=1): Not applicable, solid

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

The product is chemically stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions

Can react with some acids with the evolution of hydrogen.

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

Can react with some acids with the evolution of hydrogen.

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.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral):	Not classified
Acute toxicity (dermal):	Not classified
Acute toxicity (inhalation):	Not classified
Chromium (7440-47-3)	
LD50 oral rat:	> 5000 mg/kg Source: ECHA
LC50 Inhalation – Rat:	> 5.41 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
LC50 Inhalation - Rat (Dust/Mist):	> 5.41 mg/l Source: ECHA
Silicon (7440-21-3)	
LD50 oral:	3160 mg/kg
LD50 dermal rabbit:	> 5000 mg/kg bodyweight Animal: rabbit
ATE CLP (oral):	3160 mg/kg bodyweight
Skin corrosion/irritation:	Not classified
pH:	Not applicable, solid
Chromium (7440-47-3)	
pH 6.8 Source:	The ECOTOXicology database
Serious eye damage/irritation:	Not classified
pH:	Not applicable, solid
Respiratory or skin sensitisation:	Not classified
Germ cell mutagenicity:	Not classified
Carcinogenicity:	Not classified
Chromium (7440-47-3)	
IARC group 3:	Not classifiable
Reproductive toxicity:	Not classified
Silicon (7440-21-3)	
NOAEL (animal/male, F0/P):	5000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: other:
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified
Chromium (7440-47-3)	
LOAEC (inhal.,rat,dust/mist/fume, 90 days):	≥ 4,4 µg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
NOAEL (oral, rat, 90 days):	1216 mg/kg bodyweight/day (Ivankovic, S. and R. Preussman, 1975, Food Cosmet Toxicol.13(3): 347-51)
Silicon (7440-21-3)	
NOAEL (oral, rat, 90 days):	> 5000 mg/kg bodyweight Animal: rat, Animal sex: male
Aspiration hazard:	Not classified
High Carbon Ferrochrome	
Viscosity, kinematic:	Not applicable, solid

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

11.2.2. Other information

Potential Adverse human health effects and symptoms. Chromium VI may be formed at elevated temperature processing operations such as welding, with related risks and effects.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1 Hazardous to the aquatic environment, short-term (acute)

Not classified

12.1.2 Hazardous to the aquatic environment, long-term (chronic)

Not classified

Chromium (7440-47-3)

LC50 – Fish:	13.9 – 210 mg/l Source: GESTIS
EC50 - Crustacea	13.1 – 14.7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae	0.1 – 17.8 mg/l Source: GESTIS

Silicon (7440-21-3)

EC50 72h - Algae	≈ 250 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
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Iron (7439-89-6)

EC50 - Crustacea	> 100 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea	> 10000 mg/l Test organisms (species): Daphnia magna

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

High Carbon Ferrochrome

Partition coefficient n-octanol/water (Log Kow): Not applicable

Chromium (7440-47-3)

Partition coefficient n-octanol/water (Log Pow): 0.23 Source: SRC

12.4. Mobility in soil

Insignificant solubility in water, immobile.

12.5. Results of PBT and vPvB assessment

High Carbon Ferrochrome

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Endocrine disrupting properties

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

No additional information available

SECTION 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.

SECTION 14: TRANSPORT INFORMATION

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number or ID number:

ADR	IMDG	IATA	ADN	RID
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.2. UN proper shipping name:

ADR	IMDG	IATA	ADN	RID
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.3. Transport hazard class(es):

ADR	IMDG	IATA	ADN	RID
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.4. Packing group:

ADR	IMDG	IATA	ADN	RID
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.5. Environmental hazards:

ADR	IMDG	IATA	ADN	RID
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.6. Special precautions for user

Overland transport:	Transport by sea	Transport by air	Transport by in-land waterway	Transport by railway
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: REGULATORY INFORMATION

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List):	Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)
REACH Annex XIV (Authorisation List):	Contains no substance(s) listed on REACH Annex XIV (Authorisation List)
REACH Candidate List (SVHC):	Contains no substance(s) listed on the REACH Candidate List
PIC Regulation (Prior Informed Consent):	Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)
POP Regulation (Persistent Organic Pollutants):	Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)
Ozone Regulation (1005/2009):	Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)
Explosives Precursors Regulation (2019/1148):	Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)
Drug Precursors Regulation (273/2004):	Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Water hazard class (WGK):	WGK nwg, Non-hazardous to water (Classification acc. to AwSV, Annex 1).
Hazardous Incident Ordinance (12. BImSchV):	Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen :	None of the components are listed
SZW-lijst van mutagene stoffen :	None of the components are listed
SZW-lijst van reprotoxische stoffen – Borstvoeding:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid:	None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling :	None of the components are listed

15.2. Chemical safety assessment

No chemical safety assessment has been carried out because the substance is not classified as hazardous according to regulation (EC) 1272/2008 [CLP].

SECTION 16: OTHER INFORMATION

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.

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.

Abbreviations and acronyms:

SDS	Safety Data Sheet
RID	Regulation concerning the International Carriage of Dangerous Goods by Railways
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals, Regulation (EC) No 1907/2006
OECD	Organisation for Economic Co-operation and Development
NOEC	No-Observed Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
LOAEL	Lowest Observed Adverse Effect Level
LD50	Lethal dose for 50 percent of test population (median lethal dose)
LC50	Lethal concentration for 50 percent of test population (median lethal concentration)
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association
EC50	Effective concentration for 50 percent of test population (median effective concentration)
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
BCF	Bioconcentration factor
ATE	Acute Toxicity Estimate
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
PNEC	Predicted No-Effect Concentration vPvB Very Persistent and Very Bioaccumulative
PBT	Persistent Bioaccumulative Toxic
DNEL	Derived-No Effect Level

Other information:

The information presented in this Safety Data Sheet is based on current knowledge and is believed to be complete and accurate. It describes the product for the purposes of health, safety and environment requirements only and shall, therefore, be used only as a guide. The data refers to a specific product and may not be valid for combined uses with other products. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The Supplier of this SDS shall not be responsible for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices.



High Carbon Ferrochrome Safety Data Sheet

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.