

EAF Dust

Safety Data Sheet

1. Identification of the Substance and company

This residue product has not been registered under REACH due to it being defined as a non-substance. Since it is not covered by REACH it does not legally require a safety data sheet. However, in order to provide duty of care to the supply chain, a safety data sheet has been produced using the guidance laid down in REACH although it is stressed that this does not mean that this safety data sheet is a legal document.

1.1 Product identifier

Other names:	Electric Arc Furnace dust
--------------	---------------------------

1.2 Description

A secondary residue product produced by the melting and refining of iron and steel scrap along with additions in an electric arc furnace.

1.3 Details of supplier

Company:	Liberty Speciality Steels, Rotherham Works, PO Box 50. Aldwarke Lane, Rotherham S60 1DW
Telephone:	+44 (0) 1709 371234
Normal Hours:	Contact Environmental Department or Manager Cast Products
Email:	contactus@specialityuk.com

1.4 Emergency contact

Emergency:	Contact security department
------------	-----------------------------

2. Hazards Identification

2.1 Classification

Hazard Classification: CLP regulations (EC)1272/2008		
Name	Hazard Category	Hazard Statement (code)
EAF Dust	Skin Irrit. 2	H315
	Eye Damage 1	H318
	STOT SE. 3	H335
	Acute Tox 4	H302, H332
	STOT Rep Exp 2 Repr. 1A Aquatic Chronic 1 Aquatic Acute 1	H373 H360 Df H410 H400

2.2 Label elements according to CLP regulations (EC)1272/2008



Signal word – **Danger**

Full text of hazard statements and precautionary statements can be found in Section 16.

Liberty Speciality Steels

7 Fox Valley Way, Stocksbridge, Sheffield, S36 2JA, United Kingdom

T: +44 (0) 114 288 2361 E: contactus@specialityuk.com

2.3 Other hazards

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

3. Composition/information on EAF dust

The analysis given in the following table is for the dried solids from the material. The composition may vary but typical ranges for individual constituents are given as shown.

Substance	CAS-Nr.	Einecs No.	Classification (CLP Regs)	Range (%) by weight
Iron (Iron oxides)	7439-89-6	231-096-4	Not classified as dangerous	20.0 – 55.0
Zinc oxide	1314-13-2	215-222-5	Aquatic Chronic 1 H410	10.0 – 40.0
Calcium oxide	1305-78-8	215-138-9	Skin Irrit. 2 H315 Eye Damage 1 H318 STOT Single Exp. 3 H335 Affected organs: Respiratory tract, Route of exposure Inhalation	3.0 – 10.0
Manganese oxide	1313-13-9	215-202-6	Acute Tox. 4 H302 Acute Tox. 4 H332 STOT Rep. Exp. 2 H373 Affected organs: Brain Route of exposure: Inhalation	2.0 – 6.0
Lead oxide	1317-36-8	215-267-0	Acute Tox. 4 H302 Acute Tox. 4 H332 Repr. 1A H360, H360Df - May damage fertility. May damage the unborn child STOT Rep. Exp. 2 H373 Affected organs: The central nervous system and systems for reproduction Aquatic Chronic 1 H410 Aquatic Acute Category 1 H400	1.0 – 5.0
Nickel	7440-02-0	231-111-4	Carc. 2: H351 Skin Sens. 1: H317 STOT RE 1: H372	0.01 – 0.25
Magnesium oxide	1309-48-4	215-171-9	Not classified as dangerous	2.0 – 9.0
Silicon dioxide	7631-86-9	231-545-4	Not classified as dangerous	2.0 – 4.0
Chromium	7440-47-3	231-157-5	Not classified as dangerous	0.2 – 1.0

Full text of hazard statements above can be found in Section 16.

4. First aid measures

4.1 Description of first aid measures

- General:** As soon as practical remove any clothing soiled by the product.
- Skin contact:** Remove contaminated clothing. Wash skin thoroughly with soap and water. Launder clothes before re-use.
- Eye contact:** Physical irritation. Irrigate the eye copiously with water, seek medical attention.
- Inhalation:** Remove to fresh air. Seek medical attention.
- Ingestion:** Wash out mouth with copious quantities of water and seek immediate medical attention.

4.2 Most important symptoms and effects

No additional important symptoms or effects other than those highlighted above.

4.3 Indication of any immediate medical attention or treatment

For immediate medical attention and special treatments please follow the advice given in 4.1.

5. Fire fighting measures

5.1 Extinguishing media

Non-flammable

5.2 Special hazards

No special hazards known.

5.3 Advice for fire fighters Non-flammable, so no advice required.

6. Accidental release measures

6.1 Personal precautions

Wear general handling gloves and overalls. (see Section 8).

6.2 Environmental precautions

Do not allow product to reach sewage systems or water bodies.

6.3 Methods for cleaning up

Spillages. Contain any spillages and recover spilt material for correct disposal or recycling at a licensed disposal site.

7. Handling and Storage

7.1 Handling

Information for safe handling: use mechanical equipment to handle and move this residue product.

7.2 Storage

Where possible keep material in moist state to minimise dust generation during handling and storage.

7.3

No specific end uses.

8. Exposure controls and personal protection

8.1 Control parameters [occupational exposure limits (OELs)]

Substance	United Kingdom	
	8-h TWA (mg/m ³)	STEL (mg/m ³)
Calcium oxide	2.0	--
Lead oxide	0.15	--
Manganese oxide	0.5	--
Nickel (water soluble compounds as Ni)	0.1	--
TWA – Time-weighted average measured over an 8-hour period STEL – Short-term exposure limit value – 15-minute duration		
mg/m ³ - milligrams per cubic metre (unit of concentration)		

8.2 Control measures

Wear general handling gloves and overalls. Overalls will need to be cleaned by specialist cleaners on a regular basis to prevent impregnation of lead dust into the fabric. If severe contamination is likely disposable paper overalls may be a more suitable choice.

High standards of personal hygiene should be adhered to when working with this material, including washing of hands and face before consuming food. In dusty conditions wear suitable eye/face protection such as goggles and/or visors. Respiratory protection is not considered to be required unless the product becomes dry and gives rise to airborne dust. Suitable respiratory protection i.e. a filtering face piece respirator conforming to EN149 FFP3 may be required under these circumstances.

Work with lead compounds is subject to the Control of Lead at Work Regulations (2002) (UK). Under these regulations exposure to airborne lead must be controlled within prescribed limits. Where exposure to lead is assessed as being significant (i.e. where exposure by inhalation exceeds half the exposure limit, or where there is a substantial risk of ingestion) medical surveillance will be required. Where exposure to lead is assessed as being not significant, provisions for air monitoring and medical surveillance of employees need not apply. This will normally be the case, where good hygiene and handling procedures are followed.

8.2.1 Environmental

This substance should be handled with care and should not be allowed to enter water, soil systems.

9. Physical and chemical properties

Property	Value used
Physical State at 20°C/ 1 013 hPa	Solid
Form	Red/brown dust
Odour	Musty
Melting point	N/A, lead may volatilise first
Specific gravity	1.5 to 2.5 t/m ³
Water solubility	Insoluble in water

10. Stability and reactivity

The product is stable under normal conditions but when subjected to elevated temperatures fumes may be released.

11. Toxicological information

Acute toxicity/Irritation/Corrosion/Respiratory/Skin sensitisation

Dust may cause physical irritation to the eyes and upper respiratory tract. Not expected to be a sensitiser, based on industrial exposure experience. Excessive long-term exposure to zinc oxide fumes may give rise to flu-like symptoms known as metal fume fever.

Carcinogenicity

Nickel is classified as Carc.2 suspected of causing cancer if present above 0.1%.

Reproductive toxicity

The developing unborn child is at particular risk from exposure to lead.

Repeated dose toxicity

Lead is a cumulative poison, which is deposited in the bone, where it is slowly released and may produce chronic effects. Symptoms can include headaches, tiredness, irritability, constipation, nausea, stomach pains and loss of weight. Continuous uncontrolled exposure can cause anaemia, kidney damage, and nerve and brain damage. Manganese oxide is known to cause damage to the central nervous system if exposure is high and prolonged. High concentrations of iron oxide inhaled over periods of time can show up in chest X-rays. This effect (siderosis) is known to be benign.

12. Ecological information

The maximum acceptable toxic limit for inorganic lead has been determined for several species of fish under different conditions and results range from 0.04 mg/l to 0.198mg/l.

The toxicity was determined of EAF dust towards *Oncorhynchus mykiss* (rainbow trout), *Daphnia magna* and *Pseudokirchneriella subcapita*.

For *Oncorhynchus mykiss* the 96-h LC₅₀ was > 100 mg/l.

For *Daphnia magna* the 24-h and 48-h EC₅₀ were both >100 mg/l and the 0-24 h and 0-48-h NOECs and LOECs were 100 mg/l and > 100 mg/l, respectively.

For *Pseudokirchneriella subcapita* the 48-h EC(r) and EC(y) were 2.16 and 0.709 mg/l, respectively. The 72-h EC(r) and EC(y) were 1.55 and 0.617 mg/l, respectively. The 0-72 h NOEC(r) and LOEC(r) were 0.32 and 1 mg/l, respectively. The 0-72 h NOEC(y) and LOEC(y) were 0.032 and 0.1 mg/l, respectively.

13. Disposal considerations

This material should be recycled where possible. The waste hierarchy should be considered when managing this residue product. Disposal should be in accordance with current local and national legislation. Dispose to a correctly licensed/permited landfill site.

14. Transport information

ADR as UN3077 environmentally hazardous substance, solid, N.O.S (not otherwise specified). In order to transport this material a waste carrier's licence will be required.

15. Regulatory information

15.1

REACH:	Not registered under REACH as it is defined as a non-substance
Authorisations:	Not required, not present on the candidate list of substances of very high concern
Restrictions on use:	None
Other EU regulations:	Control of Lead at Work Regulations (2002) The Hazardous Waste (England and Wales) Regulations 2005
Restrictions of occupation:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions for pregnant and nursing mothers according to the 'mother protection guideline' (92/85/EEC).

15.2

A chemical safety assessment has not been carried out for this substance, as it is not REACH applicable.

16. Other Information

Hazard and Precautionary Statements according to CLP Regulations (EC)1272/2008):

H302:	Harmful if swallowed
H315:	Causes skin irritation
H317:	May cause an allergic skin reaction
H318:	Causes serious eye damage
H332:	Harmful if inhaled
H335:	May cause respiratory irritation
H351:	Suspected of causing cancer
H360:	May damage fertility or the unborn child, H360 Df May damage fertility, May damage unborn child
H372:	Causes damage to organs through prolonged or repeated exposure
H373:	May cause damage to organs, Target organ – Brain, Route of exposure - Inhalation
H410:	Very toxic to aquatic life with long lasting effects
H400:	Very toxic to aquatic life
P102:	Keep out of reach of children.
P260:	Do not breathe dust/fume/gas/mist/vapours/spray
P264:	Wash ... thoroughly after handling



- P270: Do not eat, drink or smoke when using this product
P271: Use only outdoors or in a well-ventilated area
P273: Avoid release to the environment
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305: IF IN EYES:
P351: Rinse cautiously with water for several minutes.
P310: Immediately call a POISON CENTRE or doctor/physician.
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P391: Collect spillage
P501: Dispose of contents/container to hazardous waste collection point.

Revision

This safety data sheet has been produced/revised in line with Reg 453/2010 - Annex II of the REACH Regulations (2010) however this is not legally required.

This revision is the current version dated **May 2017** Changes: *Re-branded to Liberty Speciality steels*

Previous Versions: August 2015 Changes: deleted references to Dangerous Substances Directive to comply with June 2015 requirements CLP. Also minor edits.

February – 2013
November – 2011
August – 2000
March - 1996

References

Health and Safety Executive, 2005: EH40 - Workplace Exposure Limits (amended 2007). Health and Safety Executive, UK. REACH Registration Dossiers for calcium oxide, zinc oxide, manganese oxide and lead oxide.

Disclaimer

The information, specifications, procedures, and recommendations herein are presented in good faith and are believed to be accurate and reliable at the date of issue. Where information is taken from supplied items it is the responsibility of the supplier to ensure the accuracy of the data. The individual authors of this safety sheet are deemed to be appropriately competent. This safety data sheet was constructed using guidance set out under the REACH regulations ((EC) No 1907/2006) using the guidance provided as to the format and information necessary. Occupational exposure limits (OEL) used in this safety data sheet will be EU OELs and where these limits do not exist appropriate member state OELs will be the reference limit. No liability can be accepted with regard to the handling, processing or use of the product concerned which, in all cases, shall be in accordance with appropriate regulations and or legislation. Liberty Speciality Steels gives no warranty or representation as to the accuracy of the information or for the guidance being for, or suitable for, a specific purpose. All implied warranties and conditions are excluded, to the maximum extent permitted by law. Use of this document by any third party is at your own risk. Save to the extent that liability cannot be excluded by law, Liberty Speciality Steels is in no way responsible or liable for any damage or loss whatsoever arising from the use of or reliance on the information and guidance contained in this document.