

Material Safety Data Sheet

According to Article 32 (non hazardous substance) of Regulation (EC) No 1907/2006 (REACH)

Material identification: **StahLith® L** Material number: 405
Date of issue: 04.07.1994 Revised: 25.01.2017 Printed: 25.01.2017 Page: 1 of 7

1 Identification of the substance/mixture and of the company

1.1 Product identifier

Identification on the label / trade name: **StahLith® L**
Classification and Labelling Inventory (ECHA) **Slags, steelmaking, converter**
REACH registration number: 01-2119487458-21-0002
EC No: 294-409-3
CAS No: 91722-09-7
Additional identification: Schlacken, Stahlerzeugung, Konverter
BOS : basic oxygen furnace slag
Konverterschlacke
LD-Schlacke
Sauerstoffblas-Verfahren Stahlwerksschlacke, Konverter

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

1.2.1 Identified uses: Classifying and sieving of slag,
Raw material for formed (building) material,
Road, place, gravel covering layer constructions,
Embankments fill, Earth work constructions, Railway ballast,
Use in concrete grout and mortar (self levelling compounds),
Wastewater treatment/ water treatment,
Fertilizer and soil conditioner.

1.2.2 Uses advised against: none.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer): Salzgitter Flachstahl GmbH
Street: Eisenhüttenstraße 99, 38239 Salzgitter
Postal code/city: 38223 Salzgitter
Country: Deutschland
Telephone: 05341 / 21-01
Telefax: 05341 / 21-3921
Informing department: Hauptabteilung Arbeitssicherheit

Telephone: 05341 / 21-2201
Telefax: 05341 / 21-3921

E-mail (competent person): szfg.reach@salzgitter-ag.de

1.4 Emergency telephone number: 05341 / 21-112 (plant fire department)

2 Hazards identification

2.1 Classification of the substance: This substance does not meet the requirements for classification as dangerous according to the Classification, Labelling and Packaging of substances and mixtures (CLP) regulations (EC 1272/2008).

2.2 Label elements: not applicable

2.3 Other hazards: Dust of slag can act as an irritant and cause mechanical irritation to the eyes and respiration system.
The PBT-Criteria are not applicable for inorganic substances (not toxic and not bioaccumulative).

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3 Composition/information on ingredients

- 3.1 Substance related information:** Slags, steelmaking, converter
EC-No.: 294-409-3 CAS-No.: 91722-09-7
Complex Ca-Mg-Fe-Mn- silicate composition.
- 3.2 Further information:** Steelmaking slag converter is a crystalline substance, which is a byproduct of iron production in a basic oxygen furnace. The structure of the slag depends on the temperature during cooling.

4 First aid measures

- 4.1 Description of first aid measures**
- 4.1.1 In case of inhalation:** Move affected person into fresh air. Seek medical advice if irritation persists.
- 4.1.2 In case of skin contact:** Wash with soap and water.
- 4.1.3 In case of eye contact:** Rinse the eyes with water with the eyelids open. Seek medical advice if irritation persists.
- 4.1.4 In case of ingestion:** Rinse mouth and drink plenty of water.
- 4.2 Most important symptoms and effects, both acute and delayed:** Mechanical friction of particles in the eye can cause irritation.
- 4.3 Indication of any immediate medical attention and special treatment needed:** none

5 Fire-fighting measures

- 5.1 Suitable extinguishing media:** Foam (alcohol-resistant), carbon dioxide-powder, spray (water). Product itself does not burn. Coordinate fire-fighting measures to the fire surroundings.
- 5.2 Unsuitable extinguishing media:** none known
- 5.3 Special hazards arising from the substance or mixture:** none
- 5.4 Advice for firefighters:** not applicable (see 5.1 above)

6 Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**
- 6.1.1 For non-emergency personnel:** Keep unprotected people away and stay on the upwind side. Avoid dust dispersion.
- 6.1.2 For emergency responder:** Wear personal protection equipment. Provide adequate ventilation.
- 6.2 Environmental precautions:** not necessary
- 6.3 Methods and material for containment and cleaning up:** Pick up mechanically, avoid disturbing dust. Use dust reducing cleaning method.
- 6.4 Reference to other sections:** Waste disposal: compare section 13
Personel protection: compare section 8

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7 Handling and Storage

7.1 Precautions for safe handling

7.1.1 Advices on safe handling:

Avoid dust dispersion. Where applicable keep substance wet. In closed areas provide adequate ventilation to prevent dust inhalation.

7.1.2 Technical measures:

In case of further handling with foreseeable high dust dispersion, use for example an exhaust ventilation with filter or a closed system.

7.1.3 Advice on general occupational hygiene:

Do not eat, drink, smoke or take snuff while working. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities:

none

7.3 Specific end use:

Please see section 1.2.

Dust exposure limits: Please refer to section 8.1.

8 Exposure controls / Personal protection

8.1 Control parameters

8.1.1 Occupational exposure limits (OELs):

CAS-No.	Name	Limit value - 8 h		Exceedance factor
		ml/m ³	mg/m ³	
	Dust, respirable		1.25 A	
	Dust, inhalable		10 E	2(II)

Source (German legislation): TRGS 900 "Arbeitsplatzgrenzwerte"

8.1.2 Additional hints on exposure limits:

National legislative regulations are to be considered.

8.1.3 DNEL/DMEL and PNEC values:

No specific substance related threshold can be derived.

8.2 Exposure controls

8.2.1 Occupational exposure controls:

Please refer to section 7.

8.2.2 Respiratory protection:

In the case of high dust concentration: EN149 FFP2 filter. Check the resistance to chemicals of the protective gloves together with the supplier of the gloves. Use only gloves conform to 89/686/EEC.

8.2.3 Hand protection:

Wear duration at permanent or occasional contact: gloves made of fabric coated with nitrile rubber. Breakthrough time (maximal wear duration): > 480 min
At appearance of dust: safety glasses.

8.2.4 Eye protection:

8.2.5 Suitable protective clothing:

Use usual working clothes.

8.3 Environmental exposure controls:

Dust emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

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9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

- 9.1.1 Appearance: solid, grey
- 9.1.2 Odour: odourless
- 9.1.3 Odour threshold: n.a.
- 9.1.4 pH Value: approx 10 - 13 (Eluate according to EN 12457-4)
- 9.1.5 Melting point/freezing point: approx. 1100-1400°C
- 9.1.6 Initial boiling point and boiling range: > 2000°C
- 9.1.7 Flash point: Ferrous slags are inert inorganics with all relevant analytes in their most stable oxidation state, further oxidation will not occur spontaneously. Even if oxidizable material is present (graphite, traces of metal), it is not possible to generate a flammable gas phase from slag.
- 9.1.8 Evaporation rate: n.a., melting point above 1000°C
- 9.1.9 Flammability: not flammable
- 9.1.10 Vapour Pressure: n.a., according to REACH regulation, study does not need to be conducted for solids which melt above 300 °C.
- 9.1.11 Density: approx. 3 - 4 g/cm³ (20 °C)
- 9.1.12 Water solubility: < 1 g/l
- 9.1.13 Partition coefficient n-octanol/water: n.a.: Slags are solid UVCB which consist almost exclusively of inorganic ions in vitreous matrix or crystal lattice. These ions are insoluble in organic solvents including octanol.
- 9.1.14 Auto-ignition temperature: n.a.: Since ferrous slags are inert inorganics with all relevant analytes in their most stable oxidation state, further oxidation will not occur spontaneously.
- 9.1.15 Decomposition temperature: n.a.: Melting point > 1000°C.
- 9.1.16 Viscosity: n.a. because of physical state
- 9.1.17 Explosive properties: Ferrous slags are inert inorganics with all relevant analytes in their most stable oxidation state. Ferrous slags do not contain any chemical group associated with explosive properties.
- 9.1.18 Oxidising properties: Not oxidising: Ferrous slags are formed at temperatures of > 1000°C and are free of any material which could exothermically react with combustible material under standard conditions.
- 9.2 Other information: none

10 Stability and Reactivity

- 10.1 Reactivity: Not reactive under normal conditions (compare section 9).
- 10.2 Chemical Stability: Stable under normal conditions.
- 10.3 Possibility of hazardous reaction: none (compare section 9)
- 10.4 Conditions to avoid: none
- 10.5 Incompatible materials: none
- 10.6 Hazardous decomposition products: none

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11 Toxicological information

- 11.1 Acute toxicity:**
oral: tested substance BOS
OECD Guideline 423, Wistar rat
LD₅₀ > 2000 mg/kg
dermal: tested substance BOS
OECD Guideline 402, Wistar rat
LD₅₀ > 4000 mg/kg
inhalative: tested substance GGBS
OECD Guideline 403, Wistar rat
LC₅₀ (powder) (4h) > 5235 mg/m³
OECD-Guidline 412 (Repeated Dose Inhalation Toxicity: 28 Days),
Wistar rat
NOAEL > 24.9 µg/L (aerosol)
- 11.2 Skin corrosion/ Irritation:**
skin: tested substance BOS
acute irritant effect, OECD 404, New Zealand White rabbit
result: not irritant
- 11.3 Serious eye damage/irritation:**
eye: tested substance BOS
acute irritant effect, OECD 405, New Zealand White rabbit
result: not irritant
- 11.4 Respiratory or skin sensitisation:**
skin: tested substance BOS
OECD 406, Dunkin-Hartley guinea pig
result: not sensitive
- 11.5 Germ cell mutagenicity:**
Mutagenicity: tested substance BOS, bacterial reverse mutation
assay, OECD 471, Salmonella typhimurium
result: no mutagenic effect
Mutagenicity: tested substance BOS, mammalian erythrocyte
micronucleus test, OECD 474, mouse
result: no mutagenic effect
- 11.6 Carcinogenicity:**
There are no specific and reliable animal studies on
carcinogenicity. But one assessed study gives some hints
towards a not existing carcinogenic potential of ferrous slags.
- 11.7 Reproductive toxicity:**
No evidence from acute tests or other data for any
reproductive effects. No data available from studies dedicated
especially to reproduction toxicity. As slags are similar to
natural rocks, no reproductive effects have to be expected.
- 11.8 STOT -single exposure:**
The results from acute toxicity test give no hint towards a
STOT potential of slags.
- 11.9 STOT-repeated exposure:**
The results from acute toxicity test give no hint towards a
STOT potential of slags.
- 11.10 Aspiration Hazard:**
Slags are solids and fulfil not the requirements for aspiration
hazard classification according to CLP-Regulation annex 1.

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12 Ecological information

12.1 Toxicity:

Short-term fish toxicity, tested substance BOS

OECD 203, Leuciscus idus

LC₀ (96 h) > 100 g/l

LC₅₀ (96 h) > 100 g/l

Short-term toxicity aquatic invertebrates, tested substance BOS

OECD 202, Daphnia magna

EC₀ (48 h) 33 g/l

EC₅₀ (48 h) 47 g/l

Algae toxicity, tested substance BOS

OECD 201, Scenedesmus subspicatus

IC₁₀ (72 h) 19 g/l

IC₅₀ (72 h) 86 g/l

Micro organism toxicity, tested substance BOS

OECD 209, activated sludge

EC₁₀ (3 h) > 10 g/l

EC₅₀ (3 h) > 10 g/l

12.2 Persistence and degradability:

Methods for determination of persistence and degradability are not applicable for inorganic substances.

12.3 Bioaccumulative potential:

No evidence for bioaccumulation potential (compare section 9).

12.4 Mobility in soil:

Ferrous slags are inorganic UVCB similar to natural rock. Biodegradation is of no relevance.

12.5 Results of PBT assessment:

Not applicable for inorganic substances (not toxic and not bioaccumulative).

12.6 Other adverse effects:

No negative ecological effects are expected according to the present state of knowledge.

13 Disposal considerations

13.1 Waste treatment methods:

Ferrous slags can be recovered after spillage. In the case there is no further use, the slag can be disposed following local legislation.

13.2 List of proposed waste codes/waste designations in accordance with AVV (or EWC):

Waste classification due to trade and processing. Disposal is possible as follows: EWC-Code: 10 02 01: waste from the processing of slags.

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14 Transport information

14.1 **Land transport (ADR/RID/CDG Road/CDG Rail):**

No hazardous material as defined by transport regulations.

14.2 **Inland waterway craft (ADN/ADNR):**

No hazardous material as defined by transport regulations.

14.3 **Marine transport (IMO):**

No hazardous material as defined by transport regulations.

15 Regulatory information

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

15.1.1 **EU law:**

No specific legislation relevant for this substance.

15.1.2 **National law:**

National legislation is to be considered.

15.2 **Chemical Safety Assessment:**

A chemical safety assessment has been carried out.

16 Other information

16.1 **Changes:**

First release as English version.

Revision of the German version from October 2015:

Addition of further identified uses and CSR details.

CSR: Chemical Safety Report Ferrous Slags

16.2 **Literature:**

16.3 **Method according to Article 9 of (EC) 1272/2008:**

No classification and labelling requirements for hazardous substances according to annex 1 of (EC) 1272/2008 are required.

16.4 **Further information:**

Abbreviations:

n.a. = Not applicable

BOS = Basic oxygen furnace slag

CSR = Chemical Safety Report - Ferrous Slags

GGBS = Ground granulated blast furnace slag

STOT = Specific Target Organ Toxicity

ECxx = Effect Concentration

ICxx = Inhibitor Concentration

LDxx = Lethal Dose

Statement:

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.

The product is to be used exclusively for the applications named in the technical leaflet or in the processing instructions. The receiver of our product is singularly responsible for adhering to existing laws and regulations.