

MATERIAL SAFETY DATA SHEET


1. IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

| | |
|---------------|--|
| Producer: | SSAB MEROX AB, SE-613 80 OXELÖSUND, SWEDEN www.merox.ssab.com |
| Telephone no: | + 46 155 25 44 00 |
| Fax no: | + 46 155 25 52 21 |
| Editor: | Katarina Jakobsson, phone +46 155 25 41 19 katarina.zjakobsson@merox.se [correct the address by removing the letter z from the address] |

| | |
|---------------|---|
| Supplier: | MEDAM AB, SE-61 32 NYKÖPING, SWEDEN www.medam.se |
| Telephone no: | + 46 155 29 10 51 |
| Fax no: | + 46 155 29 10 52 |

| | | |
|----------------|----------------------|--|
| Product name: | Chemical name: | Application/use: |
| Surfric | BF-slag (air cooled) | Surfric is used to increase the friction of asphalt roads/areas. |

2. COMPOSITION / INFORMATION ON INGREDIENTS

| Components | Element | EG no. | CAS no. | Content weight-% (TS) | Classification / R-phrases |
|------------------------------|------------------|-----------|------------|-----------------------|---|
| Air cooled blastfurnace slag | <i>See below</i> | 266-002-0 | 65996-69-2 | 100 |  Xi, IRRITANT R36, R37, R66, R32 |

| Chemical composition of BF slag | Compound | Guideline value [weight-%] |
|---------------------------------|--------------------------------|----------------------------|
| Silicon oxide | SiO ₂ | ≈ 34 |
| Calcium oxide | CaO | ≈ 32 |
| Magnesium oxide | MgO | ≈ 17 |
| Aluminium oxide | Al ₂ O ₃ | ≈ 13 |
| Titanium oxide | TiO ₂ | ≈ 2,5 |
| Sulphur | S | ≈ 1,5 |

COMMENTS ON THE CHEMICAL STRUCTURE:

Blast furnace slag (BF slag) is manufactured simultaneously with iron in the blast furnace. Slow chilling of the BF slag in air, forms a crystalline structure. Surfric consists of several minerals the dominating mineral is Åkermanite (Ca₂MgSi₂O₇), thereafter Monticellite (CaMgSiO₄) and Spinel (MgAl₂O₄). Air cooled BF slag does not contain Quartz, Cristobalite, Tridymite or additives.

The chemical composition above are expressed in a common way from element analysis, therefore are no CAS-no or EG-no specified. Trace elements in blastfurnace slag is presented when needed.

MATERIAL SAFETY DATA SHEET**3. HAZARDS IDENTIFICATION****Xi, IRRITANT**

Surfric is a finely ground greyish powder. Direct contact may irritate eyes and respiratory system. When mixed with water the resultant liquid will be alkaline with pH approx 11,6.

Surfric reacts with strong acids and forms hydrogen sulphide, which is very poison and highly inflammable.

Risk phrase: R36 Irritating to eyes
R37 Irritating to respiratory system
R66 Repeated exposure may cause skin dryness or cracking
R32 Contact with acids liberates very toxic gas

Protective phrase: S22 Do not breathe dust

4. FIRST-AID MEASURES

Eye contact: Rinse particles away with water. If particles remain, keep rinsing and seek medical care.

Skin contact: Wash with soap and water. Restore skin moisture with skin cream. If inflammation occurs, seek medical care.

Ingestion: Drink plenty of water. Contact medical care.

Inhalation: Fresh air. If needed, rinse nose/mouth with water. If inflammation occurs, seek medical care.

5. FIRE-FIGHTING MEASURES

Non-combustible substance.
Take actions to prevent dust emissions, see 7 and 8.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: In case of heavy dust use dust proof goggles and air purifying respirator (gas mask) with high-efficiency particulate filter.

Methods for cleaning up: Use vacuum cleaner to avoid dust release.

7. HANDLING AND STORAGE

Handling: Prevent dust emissions by using self-contained handling equipment and/or satisfactory ventilation.

Storage: In sealed bags/containers in a dry place.

MATERIAL SAFETY DATA SHEET**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

| | |
|---------------------------------------|---|
| Restricted exposure: | Actions to prevent dust origin, see 7. |
| Exposure limit values: | Exists for dust. See your own country's regulations. |
| Hygienic limit Sweden: (www.av.se) | Dust: Inhalable dust (NGV**): 10 mg/m ³ Respiratory* dust (NGV**): 5 mg/m ³ |
| Personal protective equipment: | Use dust proof goggles. Use air purifying respirator (gas mask) with high-efficiency particulate filter (in Sweden type P3), when the dust concentration is high or above the Hygienic limit. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------|--|
| Apperance: | Greyish powder, dusty |
| Particle size: | <2 mm and approx. 40% passing 0,075mm sieve. |
| pH: | ≈ 11,6 (Surfric mixed in water and placed for 1-2 hours) |

10. STABILITY AND REACTIVITY

| | |
|--|--|
| Stability / reactivity: | Stable substance. / React slowly with water and harden. |
| Materials and chemical products to be avoided: | React with strong acids and form toxic hydrogen sulfide. |

11. TOXICOLOGICAL INFORMATION

| | |
|-----------------|--|
| IRRITANT | |
| Eye contact: | Cause irritation. Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye. |
| Inhalation: | Can irritate respiratory system and cause irritation. |
| Skin contact: | Can cause irritation because of the drying effect. |
| Ingestion: | Small amounts is unlikely to cause any significant reaction. Larger doses may result in irritation to the gastro intestinal tract. Can form hydrogen sulfide in the stomach which is very toxic to inhale. |

MATERIAL SAFETY DATA SHEET**12. ECOLOGICAL INFORMATION**

Blast furnace slag is commonly used for soil improvement and road making materials.

13. DISPOSAL CONSIDERATIONS

Deposit according to local, regional and national regulations.

14. TRANSPORT INFORMATION

Surfric is not dangerous goods.

15. REGULATORY INFORMATION

The Swedish "National board of occupational safety and health" has specified hygienic limits for the substance. See 8.

Classification and labelling according to directive 67/548/EEC and 88/379/EEC.

Classification: Xi, IRRITANT



Labelling symbol:

Risk phrase: R36 Irritating to eyes
R37 Irritating to respiratory system
R66 Repeated exposure may cause skin dryness or cracking
R32 Contact with acids liberates very toxic gas

Protective phrase: S22 Do not breathe dust

16. OTHER INFORMATION

The information in this Safety data sheet has been created with the best and most up to date information known at the moment (with regards to normal handling of this product).

A thorough revision of the Swedish variant this material safety data sheet has been conducted. After a renewed valuation Surfric is classified as IRRITANT.

Surfric is fine grinded air cooled blast furnace slag.
CAS no 65996-69-2 and EN no 266-002-0.