

# SAFETY DATA SHEET

## STEEL FURNACE SLAG

Infosafe No.: LPW5B  
ISSUED Date : 26/09/2018  
ISSUED by: BLUESCOPE STEEL (AIS) PTY LTD

### 1. IDENTIFICATION

#### Chemical Product and Company Identification

Approval no: 832

#### GHS Product Identifier

STEEL FURNACE SLAG

#### Company Name

BLUESCOPE STEEL (AIS) PTY LTD (ABN 19 000 019 625)

#### Address

Five Islands Road Port Kembla  
NSW 2505 AUSTRALIA

#### Telephone/Fax Number

Tel: 02 4275 7522 (24/7 switch board)

Fax: 02 4275 7159

#### Emergency phone number

131126 Poison Info

#### Recommended use of the chemical and restrictions on use

Steel furnace slag is used as a construction material in asphalt, sealing and roadbase applications. It is also used for rail ballast.

#### Additional Information

Steel Furnace Slag (SFS) is the non-metallic product consisting essentially of calcium silicates and ferrites combined with fused oxides of iron, aluminium, manganese, calcium and magnesium, that is developed in a molten condition simultaneously with steel in a basic oxygen furnace. Steel furnace slag results from the basic oxygen steelmaking process and is a solid rock-like material. Molten slag is poured into pots which are picked up by pot carrier, tipped into bays adjacent to the furnace and allowed to solidify under atmospheric conditions. Cooling may be accelerated by application of water to the solidified surface, after which the slag is dug, crushed and screened to produce various products.

### 2. HAZARD IDENTIFICATION

#### GHS classification of the substance/mixture

Classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

STOT Repeated Exposure: Category 2

#### Signal Word (s)

WARNING

#### Hazard Statement (s)

H373 May cause damage to organs through prolonged or repeated exposure.

#### Pictogram (s)

Health hazard



**Precautionary statement – Prevention**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

**Precautionary statement – Response**

P314 Get medical advice/attention if you feel unwell.

**Precautionary statement – Disposal**

P501 Dispose of contents/container to an approved waste disposal plant.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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**Ingredients**

Name	CAS	Proportion
Calcium oxide	1305-78-8	30-60 %
Iron (II) oxide	1345-25-1	10-30 %
Magnesium oxide	1309-48-4	5-20 %
Manganese oxide	1344-43-0	3-6 %
Aluminium oxide	1344-28-1	0.5-5 %
Vanadium pentoxide (V2O5)	1314-62-1	0.1-0.3 %
Sulphur	7704-34-9	0-0.2 %
Ingredients determined not to be hazardous		Balance

**Other Information**

This product also contains small amounts of Titanium dioxide, Phosphorous oxide, Sodium oxide, Potassium oxide, Chromium oxide and Free lime.

Quartz was not detected at the limit of detection of <0.5 % (w/w)

Cristobalite was not detected at the limit of detection 1% (w/w)

### 4. FIRST-AID MEASURES

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**Inhalation**

If inhaled, remove affected person from contaminated area. Apply artificial respiration if not breathing. Seek medical attention.

**Ingestion**

Do not induce vomiting. Wash out mouth thoroughly with water. Seek immediate medical attention.

**Skin**

Remove all contaminated clothing. Wash gently and thoroughly with water and non-abrasive soap. Ensure contaminated clothing is washed before re-use or discard. If irritation develops or persists, seek medical attention.

**Eye contact**

If in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed off completely. Seek medical attention.

**First Aid Facilities**

Eyewash and normal washroom facilities.

**Advice to Doctor**

Treat symptomatically.

**Other Information**

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

### 5. FIRE-FIGHTING MEASURES

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**Suitable Extinguishing Media**

Use appropriate fire extinguisher for surrounding environment.

### **Hazards from Combustion Products**

Under fire conditions this product may emit toxic and/or irritating fumes and gases.

### **Specific Hazards Arising From The Chemical**

This product is non combustible.

### **Decomposition Temperature**

Not available

### **Precautions in connection with Fire**

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

## **6. ACCIDENTAL RELEASE MEASURES**

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### **Emergency Procedures**

Increase ventilation. Evacuate all unprotected personnel. Wear sufficient respiratory protection and full protective clothing to prevent exposure. Sweep up material avoiding dust generation or dampen spilled material with water to avoid airborne dust, then transfer material to a suitable container. Wash surfaces well with soap and water. Seal all wastes in labelled containers for subsequent recycling or disposal. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

## **7. HANDLING AND STORAGE**

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### **Precautions for Safe Handling**

Avoid inhalation of dust, and skin or eye contact. Use only in a well ventilated area. Keep containers sealed when not in use. Prevent the build up of dust in the work atmosphere. Maintain high standards of personal hygiene i.e. Washing hands prior to eating, drinking, smoking or using toilet facilities.

### **Conditions for safe storage, including any incompatibilities**

The product is stored via normal stockpiling methods.

Store in a cool, dry, well-ventilated area, out of direct sunlight and moisture. Store in suitable, labelled containers. Keep containers tightly closed. Store away from incompatible materials. Ensure that storage conditions comply with applicable local and national regulations.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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### **Occupational exposure limit values**

No exposure standards have been established for this material. However, the available exposure limits for ingredients are listed below:

Aluminium oxide:

TWA: 10 mg/m<sup>3</sup>

Vanadium pentoxide (V2O5):

TWA: 0.05 mg/m<sup>3</sup>

Manganese oxide (dust & compounds, as Mn):

TWA: 1 mg/m<sup>3</sup>

Calcium oxide:

TWA: 2 mg/m<sup>3</sup>

Iron oxide (fume):

TWA: 5 mg/m<sup>3</sup>

Magnesium oxide (fume):

TWA: 10 mg/m<sup>3</sup>

Dust (not otherwise specified):

TWA: 10 mg/m<sup>3</sup>

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

Source: Safe Work Australia

#### **Biological Limit Values**

No biological limits allocated.

#### **Appropriate Engineering Controls**

This substance is hazardous and should be used with a local exhaust ventilation system, drawing solid/dust away from workers' breathing zone. If the engineering controls are not sufficient to maintain concentrations of particulates below the exposure standards, suitable respiratory protection must be worn. Local exhaust ventilation should be used for vapours/fumes produced during processing at high temperatures.

#### **Respiratory Protection**

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable dust/particulate filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/NZS 1715 (2009), Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716 (2012), Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

#### **Eye Protection**

Safety glasses with side shields, chemical goggles or full-face shield as appropriate should be used. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform to relevant regulations. Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 2 & 6 (2012) - Eye Protectors for Industrial Applications.

#### **Hand Protection**

Wear gloves of impervious material. Final choice of appropriate gloves will vary according to individual circumstances. i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations. Reference should be made to AS/NZS 2161.1 (2016): Occupational protective gloves - Selection, use and maintenance.

#### **Body Protection**

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

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#### **Appearance**

Dark grey/black coloured rock type material consisting of angular to roughly cubical shaped particles.

#### **Odour**

May have a very faint sulphurous odour.

#### **Decomposition Temperature**

Not available

#### **Melting Point**

1300-1400°C

#### **Boiling Point**

Not applicable

#### **Solubility in Water**

Not applicable

#### **Specific Gravity**

Not applicable

#### **pH**

Not applicable

#### **Vapour Pressure**

Not applicable

**Vapour Density (Air=1)**

Not applicable

**Evaporation Rate**

Not applicable

**Density**

Bulk density: 1.60 - 1.90 t/m<sup>3</sup>

**Flash Point**

Not applicable

**Flammability**

Non-combustible solid.

**Flammable Limits - Lower**

Not applicable

**Flammable Limits - Upper**

Not applicable

## 10. STABILITY AND REACTIVITY

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**Chemical Stability**

Stable under normal conditions of storage and handling.

**Conditions to Avoid**

Dust accumulation, heat and other sources of ignition.

**Incompatible materials**

Not available

**Hazardous Decomposition Products**

Thermal decomposition may result in the release of toxic and/or irritating fumes.

**Hazardous Polymerization**

Will not occur.

## 11. TOXICOLOGICAL INFORMATION

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**Toxicology Information**

No toxicity data is available for this product.

**Ingestion**

Ingestion of this product may irritate the gastric tract causing nausea and vomiting.

**Inhalation**

Inhalation of dusts may irritate the respiratory system.

**Skin**

May cause abrasive irritation in contact with the skin, which can result in redness, itching and possible dermatitis

**Eye**

Eye contact may cause mechanical irritation. May result in mild abrasion.

**Respiratory sensitisation**

Not expected to be a respiratory sensitiser.

**Skin Sensitisation**

Not expected to be a skin sensitiser.

**Germ cell mutagenicity**

Not considered to be a mutagenic hazard.

**Carcinogenicity**

Not considered to be a carcinogenic hazard.

Vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) is listed as a Group 2B: Possibly carcinogenic to humans according to International Agency for Research on Cancer (IARC).

**Reproductive Toxicity**

Not considered to be toxic to reproduction.

**STOT-single exposure**

Not expected to cause toxicity to a specific target organ.

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure if inhaled or swallowed.

**Aspiration Hazard**

Not expected to be an aspiration hazard.

## 12. ECOLOGICAL INFORMATION

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**Ecotoxicity**

No ecological data available for this product.

**Persistence and degradability**

Not available

**Mobility**

Not available

**Bioaccumulative Potential**

Not available

**Other Adverse Effects**

Not available

**Environmental Protection**

Prevent large amounts from entering waterways, drains and sewers.

## 13. DISPOSAL CONSIDERATIONS

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**Disposal considerations**

The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.

## 14. TRANSPORT INFORMATION

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**Transport Information**

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

**U.N. Number**

None Allocated

**UN proper shipping name**

None Allocated

**Transport hazard class(es)**

None Allocated

**IMDG Marine pollutant**

No

**Transport in Bulk**

Not available

## 15. REGULATORY INFORMATION

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### Regulatory information

Classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

### Poisons Schedule

Not Scheduled

## 16. OTHER INFORMATION

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### Date of preparation or last revision of SDS

SDS Reviewed: September 2018

Supersedes: May 2013

Supersedes: March 2008

### References

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.

Standard for the Uniform Scheduling of Medicines and Poisons.

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants.

Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).

Globally Harmonised System of Classification and Labelling of Chemicals.

## END OF SDS

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