



FRONTIER CEMENT SUPPLIES
Safety Data Sheet

Product Name: Ground Granulated Blast Furnace Slag.

1. Identification of the Material and Supplier

Supplier Name: Frontier Cement Supplies
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Product Name: Ground Granulated Blast Furnace Slag
Synonym(s) Slag. Ground Granulated. GGBFS.
Use(s) Ground Granulated Blast Furnace Slag is primarily used as a supplementary cementitious material used in concrete manufacture.

2. Hazards Identification

CLASSIFIED as Non – HAZARDOUS. Non-Dangerous Goods.

Risk Phrases:

R20/21/22 Harmful by inhalation, in contact with skin & if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.
R43 May cause sensitisation by skin contact.
R66 Repeated exposure may cause skin dryness or cracking.

Safety Phrases:

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|-----------|--|
| S22 | Do Not Breathe Dust. |
| S24/25 | Avoid Contact with Skin and Eyes. |
| S29 | Do not empty in to drains. |
| S36/37/39 | Wear suitable protective clothing, gloves, & eye /face shield. |
| S38 | In case of insufficient ventilation, wear suitable respirator. |

3. Composition/Information on Ingredients

Ground Granulated Blast Furnace Slag is a co-product of the steel industry produced by adding limestone to the ore to remove non-ferrous contaminants. As such it may contain small quantities of hazardous heavy metals and crystalline silica. Major constituents are listed below

| Chemical Entity | Proportion | CAS Number |
|-------------------------------|-------------------|-------------------|
| Granulated Blast Furnace Slag | 0-7.5% | 65997-69-2 |
| Hexavalent Chromium Cr (VI) | Trace | 1333-82-0 |
| Crystalline Silica | <1% | 14808-60-7 |

4. First Aid Measures

Eyes: If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a Doctor, or for at least 15 minutes.

Swallowed: Rinse mouth, and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention.

Skin: Remove heavily contaminated clothing and flush skin with running water. Use a mild soap if available. Shower if necessary. Seek medical attention for persistent irritation or burning of the skin.

Inhaled: Remove to fresh air, away from dusty area. If symptoms persist, seek medical advice.

First Aid Facilities: Eye Wash Station and Emergency Shower are recommended.

Advice to Doctor: Treat symptomatically.

5. Fire Fighting Measures

| | |
|---------------------------------|------------------------------------|
| Fire/Explosion Hazard: | None |
| Hazchem Code: | None Allocated |
| Flammability: | Not Flammable |
| Extinguishing Media: | None Required |
| Advice for Firefighters: | No Fire or Explosion Hazard Exists |

6. Accidental Release Measures

Spills: Spills are best cleaned up by vacuum device to avoid generating airborne dust.
Wear Personal Protective Equipment as per section 8 of SDS.
Prevent product from entering storm water and sewer drains.
Refer section 13 for appropriate disposal methods.

7. Storage and Handling

Storage: Store in a cool, dry well ventilated area, removed from moisture, incompatible substances and foodstuffs. Ensure packages are adequately labelled, protected from physical damage and sealed when not in use.

Handling: Before use, carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. Exposure Controls / Personal Protection

Exposure Limits: Exposure to dust should be kept as low as practicable, and below the following OES.
Ground Granulated Slag: 10mg/m³ TWA (time weighted average) as inspirable dust.

Crystalline silica (quartz): 0.1mg/m³ TWA as respirable dust (<7microns particle equivalent aerodynamic diameter)

Chromium VL (hexavalent): 0.05mg/m³- sensitiser

Engineering Controls: All work with dry powder should be carried out in such a way as to minimise dust generation, exposure to dust and repeated or extended skin contact. When handling dry powder, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended. For handling of individual bags, follow instructions below if no local exhaust ventilation is available. Work methods and engineering should aim to minimise contact with wet slag onto exposed skin. Work areas should be cleaned regularly.

Personal Protection

- Skin:** Minimise contact. When handling dry or wet cement, wet concrete, mortar or grout, personnel should wear protective clothing and impervious footwear, and gloves such as PVC. Never kneel in wet product, or allow extended contact of skin with wet cement.
- Eyes:** Splash resistant Safety Glasses with side shields or safety glasses (AS/NZ 1336) or a face shield should be worn to ensure all contact with eyes is avoided.
- Respiratory:** Where engineering and handling controls are not adequate to minimise exposure to total dust and to respirable crystalline silica wear a suitable P1 or P2 particulate respirator (AS/NZS 1715 & AS/NZS (1716).
- Use only respirators that bear the Australian Standards mark and are fitted and maintained correctly.
- For dust levels approaching or exceeding the NES (see above) a more Effective particulate respirator as described in AS/NZS 1715 should be worn.
- Procedures for effective use of respirators should be applied and supervised.

9. Physical and Chemical Properties

- Appearance:** A ground granular product ranging in colour from light grey to off-white
- Odour:** No distinct odour.
- Boiling/Melting Point:** Melting point > 1200 degrees Celsius.
- Vapour Pressure:** Not Applicable.
- Specific Gravity:** 2.8– 2.9
- Flash Point:** Non Applicable.
- Flammability Limits:** Not Applicable.
- Solubility in Water:** Slight, reacts on mixing with water forming an alkaline (caustic) solution (pH>10)
- Particle Size:** Some proportion of the fresh dry material may be respirable (below 10 microns)

10. Stability and Reactivity

- Chemical Stability:** Chemically stable.
- Conditions to Avoid:** Keep free of moisture during storage.
- Incompatible Materials:** None.
- Hazardous Reactions:** None.

11. Toxicological Information

Ground Granulated Slags are stable substances, compatible with most other building materials, will not decompose into hazardous by-products and do not polymerise.

Health Hazard Summary: Slightly corrosive – irritant. This product has the potential to cause adverse health effects with over exposure. Use safe work practices to avoid eye or skin contact and inhalation. Once water is added an inhalation hazard is not anticipated. Chronic respiratory effects are not anticipated with over exposure at high levels due to the immediate irritant and/or corrosive effects. Hexavalent chromium compounds may be present in trace amounts in cement products and are classified as carcinogenic to humans (IARC Group1)

Eye: Corrosive – irritant. Contact may result in irritation, lacrimation, pain, redness, corneal burns and possible permanent damage. Severe irritant upon contact with powder/dust.

Inhalation: Slightly corrosive – irritant. Over exposure to dust may result in severe mucous membrane irritation of nose and throat, coughing and bronchitis. Chromium compounds have been reported to cause respiratory sensitisation and may be present as a contaminant of Slag. However, given the low level present, over exposure is not anticipated.

Skin: Slightly corrosive. Contact with powder or wetted form may result in rash and dermatitis. Some individuals may exhibit an allergic response upon exposure to cement, possibly due to trace amounts of chromium.

Ingestion: Slightly corrosive. Ingestion may result in burns to the mouth and throat, nausea, vomiting and abdominal pain. Ingestion is considered unlikely due to product form.

12. Ecological Information

Eco toxicity: May be harmful to the aquatic environment due to the alkaline nature of the product. This product is non-toxic to aquatic organisms when present as a cured solid.

Persistence & Degradability Product is persistent and would have a low degradability.

Mobility in Soil: A low mobility would be expected in a landfill situation.

13. Disposal Considerations

Waste disposal: Ground Granulated slag can be treated as a common waste for disposal or dumped into a landfill site in small quantities, in accordance with local shire or other appropriate authorities.

Keep material out of storm water and sewerage drains.

Legislation: Dispose of in accordance with relevant local legislation.

14. Transport Information

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE.

Transportation is done in bulk or bag form by Ship, Rail and Road.

UN Number: None Allocated
Proper Shipping Name: None Allocated
Class & Subsidiary Risk: None Allocated
Packing Group: None Allocated
Special precautions for user: Avoid generating and breathing dust.
Hazchem Code: None Allocated

15. Regulatory Information

Poison Schedule: A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Inventory Listings: AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

16. Other Information

Additional information: Personal Protective Equipment Guidelines:
The recommendation for protective equipment contained within this report is provided as a guide only. A risk assessment should be conducted for each individual application to determine final selection of appropriate personal protective equipment.

Additional Information: Health Effects from Exposure:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to cover all possible scenarios it is anticipated that individual product users will assess the risks and apply control methods where appropriate as per their individual circumstances.

Advice Note:
Frontier Cement Supplies believes the information in this document to be accurate as at the date of preparation noted below, but, to the maximum extent permitted by law, Frontier Cement Supplies accepts no responsibility for any loss or damage caused by any person acting or refraining from action because of this information.

The provision of this information should not be construed by anyone as a recommendation to use this product. Information is supplied as "safety data" relevant to the product.

Users should rely on their own knowledge and research to determine the applicability of this information in relation to their particular purposes and specific circumstances.

Each individual user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products.

