

GROUND GRANULATED BLAST FURNACE SLAG

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

| | |
|-------------------------------|--|
| Product Name | GROUND GRANULATED BLAST FURNACE SLAG |
| Supplier Name | ADELAIDE BRIGHTON CEMENT LTD T/A ADBRI CEMENT ABN 96 007 870 199 |
| Address | 62 Elder Road, Birkenhead, SA 5015 |
| Manufacturing - Plants | Birkenhead Works, 62 Elder Road, Birkenhead, SA 5015 Angaston Works, Stockwell Road, Angaston, SA 5333 |
| Telephone | 08 8300 0300 |
| Emergency | Bus Hrs 08 8300 0300 A/Hrs 8300 0530 |
| Email | customerservice@adbri.com.au |
| Web Site | www.adbricement.com.au |
| Synonym(s) | GGBFS, NEAT MILLED SLAG, NMS, SLAG, GROUND SLAG |
| Use(s) | Ground Granulated Blast Furnace Slag is a supplementary cementitious material (SCM) that is used in the manufacture of cementitious binders and as a partial replacement for Portland Cement in concrete and other similar products. |

2. HAZARDS IDENTIFICATION

This product is classified as hazardous according to Safe Work Australia criteria.
Not classified as a dangerous good by the criteria of the ADG code, IMDG or IATA.

GHS Classifications

| | |
|--|------------|
| Skin Corrosion/Irritation: | Category 2 |
| Serious Eye Damage / Eye Irritation: | Category 1 |
| Specific Target Organ Systemic Toxicity (Repeated Exposure): | Category 2 |

SIGNAL WORD

DANGER

Pictograms



GHS08
Health hazard



GHS07
Exclamation mark



GHS05
Corrosive

Hazard statements

| | |
|------|---|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H373 | May cause damage to lungs and respiratory tract through prolonged or repeated exposure. |

Prevention statements

| | |
|------|--|
| P260 | Do not breathe dust. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

Response statements

| | |
|--------------------|--|
| P302 + P352 | IF ON SKIN: Wash with plenty of soap and water. |
| P304 + P340 | IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P333 + P313 | If skin irritation or rash occurs: Get medical advice/attention. |

Disposal statements

| | |
|------|--|
| P501 | Dispose of contents/container in accordance with relevant regulations. |
|------|--|

| | | | | | |
|-----------------|----------------|---------------------------|----------------|------------------|----------------|
| UN No | None Allocated | Hazchem Code | None Allocated | Pkg Group | None Allocated |
| DG Class | None Allocated | Subsidiary Risk(s) | None Allocated | EPG | None Allocated |

GROUND GRANULATED BLAST FURNACE SLAG

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ingredient | Formula | Conc. | CAS No. |
|-------------------------------|-------------------------------------|---------|------------|
| GRANULATED BLAST FURNACE SLAG | Not Available | > 90% | 65996-69-2 |
| GYPSUM | CaSO ₄ 2H ₂ O | 2 - 5% | 10101-41-4 |
| CRYSTALLINE SILICA | SiO ₂ | 0 - 1 % | 14808-60-7 |

4. FIRST AID MEASURES

| | |
|-----------------------------|--|
| Eye | Flush thoroughly with flowing water for at least 15 minutes. Seek medical attention if symptoms persist. |
| Inhalation | Remove from dusty area to fresh air. If symptoms persist, seek medical attention. |
| Skin | Remove heavily contaminated clothing immediately. Wash off skin thoroughly with water. A shower may be required. Seek medical attention for persistent irritation or burning of the skin |
| Ingestion | Rinse mouth and lips with water. Do not induce vomiting. Give water to drink to dilute stomach contents. If symptoms persist, seek medical attention. |
| Advice to Doctor | Treat symptomatically. |
| First Aid Facilities | Eye wash station. |

Additional Information - Aggravated Medical Conditions

| | |
|-------------------|--|
| Inhalation | Over exposure resulting from prolonged and repeated inhalation of dust containing crystalline silica can cause bronchitis, silicosis (scarring of the lung.) It may also increase the risk of scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs) and lung cancer. Epidemiological studies have shown that smoking increases the risk of bronchitis, silicosis (scarring of the lung) and lung cancer in persons exposed to crystalline silica. |
| Skin | Prolonged and repeated skin contact with cement in wet concrete, mortars and slurries may result in irritant dermatitis. |

5. FIRE FIGHTING

| | |
|---------------------------|---|
| Flammability | Non flammable. Does not support combustion of other materials. |
| Fire and Explosion | No fire or explosion hazard exists. |
| Extinguishing | Non flammable; use suitable extinguishing agent for surrounding fire. |
| Hazchem Code | None. |

6. ACCIDENTAL RELEASE MEASURES

| | |
|-----------------------------|--|
| Spillage | If spilt (bulk), contact emergency services if appropriate. Wear dust-proof goggles, PVC/rubber gloves, a Class P2 respirator (where an inhalation risk exists), coveralls and rubber boots. Clear area of all unprotected personnel. Prevent spill entering drains or waterways. Collect and place in sealable containers for disposal or reuse. Avoid generating dust. |
| Emergency Procedures | Follow safety requirements for personal protection under Section 8 Exposure Controls/Personal Protection. |

GROUND GRANULATED BLAST FURNACE SLAG

7. HANDLING AND STORAGE

| | |
|------------------------------------|---|
| Storage | Store off the floor in the original bags in a cool, dry, well ventilated area, removed from excessive moisture and heat. 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. |
| Property/ Environmental | Refer to Section 13. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| | |
|---------------------------|--|
| Ventilation | Do not inhale dust/powder. Use with adequate ventilation. Where a dust inhalation hazard exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard. |
| Exposure Standards | GROUND GRANULATED BLAST FURNACE SLAG (65997-69-2) ES-TWA: 10mg/m ³ GYPSUM (7778-18-9) ES-TWA: 10 mg/m ³ SILICA, CRYSTALLINE – QUARTZ (14808-60-7) ES-TWA: 0.05 mg/m ³ (Respirable Dust). Under Model WHS Law adopted in most Australian jurisdictions. |
| PPE | Wear dust-proof goggles and rubber or PVC gloves. Where an inhalation risk exists, wear a Class P2 respirator. If there is potential for prolonged and/or excessive skin contact, wear coveralls. At high dust levels, wear a Class P3 respirator or a Powered Air Purifying Respirator (PAPR) with Class P3 filter. |



9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|-------------------------|---|---------------------------------|--------------------------------------|
| Appearance | Fine white powder | Solubility (water) | Slight, hardens on mixing with water |
| Odour | Odourless | Specific Gravity | 2.8 to 3.2 |
| pH | Approximately 12 | % Volatiles | Not Available |
| Vapour Pressure | Not Available | Flammability | Non Flammable |
| Vapour Density | Not Available | Flash Point | Not Relevant |
| Boiling Point | Not Available | Upper Explosion Limit | Not Relevant |
| Melting Point | > 1200°C | Lower Explosion Limit | Not Relevant |
| Evaporation Rate | Not Available | Autoignition Temperature | Not Available |
| Bulk Density | 1200 - 1600 kg/m ³ | | |
| Particle Size | 20 - 40% of particles are < 7 µm (Respirable Range) | | |

GROUND GRANULATED BLAST FURNACE SLAG**10. STABILITY AND REACTIVITY**

| | |
|-------------------------------|--|
| Chemical Stability | Chemically Stable |
| Conditions to Avoid | Keep free of moisture |
| Incompatible Materials | Incompatible with oxidising agents (eg hypochlorites), ethanol, acids (eg hydrofluoric acid) and interhalogens (eg chlorine trifluoride). Water contact may increase product |
| Decomposition Products | Unlikely to evolve toxic gases when heated to decomposition. |
| Hazardous Reactions | None |

11. TOXICOLOGICAL INFORMATION

| | |
|------------------------|---|
| Acute Toxicity | No known toxicity data available for this product. |
| Eye | Irritant upon contact with dust. Over exposure may result in pain, redness, corneal burns and ulceration with possible permanent damage. |
| Inhalation | Irritating to the respiratory system, causing coughing and sneezing. Over exposure may result in severe mucous membrane irritation and bronchitis. Crystalline silica can cause silicosis (lung disease) with chronic over exposure, however due to low levels present and product application, adverse health effects are not anticipated. |
| Skin | Irritating to the skin. Prolonged and repeated contact with powder or wetted form may result in skin rash, dermatitis and sensitisation. |
| Ingestion | Slightly corrosive. Ingestion may result in burns to the mouth and throat, with vomiting and abdominal pain. Due to product form, ingestion is not considered a likely exposure route. |
| Mutagenicity | Insufficient data available for this product to classify as a mutagen. |
| Carcinogenicity | Ground Granulated Blast Furnace Slag is not classified as a carcinogen by NOHSC. Crystalline silica is carcinogenic to humans (IARC Group 1), however due to low levels present and product application, the criteria for classification is not met. |

12. ECOLOGICAL INFORMATION

| | |
|--|---|
| Toxicity | Product forms an alkaline slurry when mixed with water. This product is non toxic to aquatic life forms when present in cured solid form. |
| 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 | Reuse or recycle where possible. Alternatively, ensure product is covered with moist soil to prevent dust generation and dispose of to an approved landfill site. Contact the manufacturer for additional information. |
| Legislation | Dispose of in accordance with relevant local legislation. Keep out of sewer and stormwater drains. |

GROUND GRANULATED BLAST FURNACE SLAG

14. TRANSPORT INFORMATION

Not classified as a dangerous good by the criteria of the ADG Code.

Transport is by rail or road in bulk or bag form.

Drivers of trucks transporting bagged product should ensure that the bags are properly restrained.

| | | | | | |
|----------------------|----------------|---------------------------|----------------|------------------|----------------|
| Shipping Name | None Allocated | Hazchem Code | None Allocated | Pkg Group | None Allocated |
| UN No | None Allocated | Subsidiary Risk(s) | None Allocated | EPG | None Allocated |
| DG Class | None Allocated | | | | |

15. REGULATORY INFORMATION

Poison Schedule AICS A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).
All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Additional Information

CEMENT CONTACT DERMATITIS: Individuals using wet cement, mortar, grout or concrete could be at risk of developing cement dermatitis. Symptoms of exposure include itchy, tender, swollen, hot, cracked or blistering skin with the potential for sensitisation.

IARC – GROUP 1 – PROVEN HUMAN CARCINOGEN. This product contains an ingredient for which there is sufficient evidence to have been classified by the International Agency for Research into Cancer as a human carcinogen. The use of products known to be human carcinogens should be strictly monitored and controlled.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES: The Recommendation for protective equipment contained within this SDS report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

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 prepare an SDS report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

ABBREVIATIONS:

mg/m³ – Milligrams per cubic metre

ppm – Parts Per Million

ES-TWA – Exposure Standard - Time Weighted Average

CNS – Central Nervous System

NOS – Not Otherwise Specified

pH – relates to hydrogen ion concentration – this value will relate to a scale of 0 – 14, where 0 is highly acidic and 14 is highly alkaline.

CAS# - Chemical Abstract Service Number – used to uniquely identify chemical compounds.

IARC – International Agency for Research on Cancer.

