1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

- **Product Name**: PORTLAND AND BLENDED CEMENT
- **Supplier Name**: ADELAIDE BRIGHTON CEMENT A.B.N. 96 007 870 199
- **Address**: 62 Elder Road, Birkenhead, SA 5015
  Birkenhead Works, 62 Elder Road, Birkenhead, SA 5015
  Angaston Works, Stockwell Road, Angaston, SA 5353
- **Telephone**: 08 8300 0300
- **Fax**: 08 8341 1591
- **Emergency**: Bus Hrs 08 8300 0300  A/Hrs 08 8300 0530
- **Email**: orderstodespatch@adbri.com.au
- **Web Site**: http://www.adelaidebrighton.com.au

- **Synonym(s)**: TYPE GP, TYPE HE, TYPE LH, TYPE SR, TYPE GB, TYPE SL CEMENTS, NORMAL PORTLAND, PREMIUM, BLENDED, HIGH EARLY STRENGTH, HES, SULFATE RESISTANT, LOW HEAT, SHRINKAGE LIMITED, BRIGHTONITE, OFF WHITE CEMENT, AUSTWELL CLASS G (OILWELL), AUSTWELL HTB, HTB, BACKFILL BINDER, BULK CEMENTITIOUS BINDER.

- **Use(s)**: Portland and Blended Cements are used as binders in structural concrete, masonry, renders, mortars and grouts. They are also used as general binders in cementitious backfill in underground mines, in the manufacture of fibre cement products and in soil stabilisation in construction and civil engineering projects.

2. HAZARDS IDENTIFICATION

This product is classified as hazardous according to criteria of NOHSC.
Not classified as a dangerous good by the criteria of the ADG Code.

**RISK PHRASES**
- R36/37/38: Irritating to eyes, respiratory system and skin.
- R40: Limited evidence of a carcinogenic effect.
- R43: May cause sensitisation by skin contact.
- R48/20: Harmful : danger of serious damage to health by prolonged exposure through inhalation.

**SAFETY PHRASES**
- S20/21: When using do not eat, drink or smoke.
- S22: Do not breathe dust.
- S24/25: Avoid contact with skin and eyes.
- S36/37: Wear suitable protective clothing and gloves.
- S38: In case of insufficient ventilation, wear suitable respiratory equipment.

<table>
<thead>
<tr>
<th>UN No</th>
<th>None Allocated</th>
<th>Hazchem Code</th>
<th>None Allocated</th>
<th>Pkg Group</th>
<th>None Allocated</th>
<th>EPG</th>
<th>None Allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG Class</td>
<td>None Allocated</td>
<td>Subsidiary Risk(s)</td>
<td>None Allocated</td>
<td>EPG Group</td>
<td>None Allocated</td>
<td></td>
<td></td>
</tr>
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</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Formula</th>
<th>Conc.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTLAND CEMENT</td>
<td>Not Available</td>
<td>&lt; 97%</td>
<td>65997-15-1</td>
</tr>
<tr>
<td>*FLY ASH</td>
<td>Not Available</td>
<td>0 - 60%</td>
<td>68131-74-8</td>
</tr>
<tr>
<td>*SILICA FUME</td>
<td>SiO₂</td>
<td>0 - 10%</td>
<td>69012-64-2</td>
</tr>
<tr>
<td>*GYPSUM</td>
<td>CaSO₄ 2H₂O</td>
<td>3 - 8%</td>
<td>10101-41-4</td>
</tr>
<tr>
<td>*LIMESTONE</td>
<td>CaCO₃</td>
<td>0 - 5%</td>
<td>1317-65-3</td>
</tr>
<tr>
<td>*SILICA FLOUR</td>
<td>Quartz SiO₂</td>
<td>0 - 50%</td>
<td>14808-60-7</td>
</tr>
<tr>
<td>CHROMIUM (VI)</td>
<td>Cr⁶⁺</td>
<td>&lt; 10 ppm</td>
<td>18540-29-9</td>
</tr>
</tbody>
</table>

*NOTE: Cements may contain 0.1%-35% crystalline silica (CAS No. 14808-60-7) depending on the proportions and crystalline silica content of the ingredients. All ingredients may contain crystalline silica.
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
Wash thoroughly with water. A shower may be required.

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 - Aggrevated Medical Conditions

Inhalation
Inhalation of dust through prolonged, repeated exposure 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 (scaring of the lung) and lung cancer.

Skin
Prolonged and repeated skin contact with cement in wet concrete, mortars and slurries may cause both irritant dermatitis and allergic (contact) dermatitis. The latter is due to the presence of traces of water soluble hexavalent chromium in cement.

5. FIRE FIGHTING

Flammability
Non flammable. Does not support combustion of other materials.

Fire and Explosion
Non flammable. Does not cause dust explosions.

Extinguishing
Non flammable.

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.

7. HANDLING AND STORAGE

Storage
Store in cool, dry, well ventilated area, removed from moisture, oxidising agents (eg. Hypochlorites, phosphorus oxide), acids, (eg hydrochloric acid), ethanol, interhalogens (eg. chlorine trifluoride) 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.

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
CALCIUM HYDROXIDE (1305-62-0)
ES-TWA: 5 mg/m³
WES-TWA: 5mg/m³
CHROMIUM (VI) (18540-29-9)
ES-TWA: 0.05 mg/m³ (Chromium VI compounds)
SILICA, CRYSTALLINE – QUARTZ (14808-60-7)
ES-TWA: 0.1 mg/m³ (Silica Quartz, respirable, NOHSC)
ES-TWA: 0.1 mg/m³ (QLD); 0.15 mg/m³ (NSW)
WES-TWA: 0.1 mg/m³
PORTLAND CEMENT (65997-15-1)
ES-TWA: 10 mg/m³ Portland Cement
ES-TWA: 0.05 mg/m³ Chromium (VI) Compounds (contaminant)
WES-TWA: 10 mg/m³
SILICA, AMORPHOUS – FUME (69012-64-2)
ES-TWA: 2 mg/m³ Silica fume (thermally generated) (respirable)
GYPSUM (10101-41-4)
ES-TWA: 10 mg/m³ Inhaleable dust
CALCIUM CARBONATE (1317-65-3)
ES-TWA: 10mg/m³
WES-TWA: 10mg/m³
FLYASH (68131-74-8)
ES-TWA: 10mg/m³

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Fine powder ranging in colour from grey to off-white</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>pH</td>
<td>Approximately 12</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>Not Available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt; 1200°C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Available</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>1200 - 1600 kg/m³</td>
</tr>
<tr>
<td>Particle Size</td>
<td>20 - 40% of particles are &lt; 7 μm, ie in the respirable range</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>Slight, hardens on mixing with water</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.5 to 3.2</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability</td>
<td>Non Flammable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Relevant</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
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<tr>
<td>Lower Explosion Limit</td>
<td>Not Relevant</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Incompatible with oxidising agents (eg hypochlorites), ethanol, acids (eg hydrofluoric acid) and interhalogens (eg chlorine trifluoride). Water contact may increase product temperature 2-3°C.

Decomposition Products
Unlikely to evolve toxic gases when heated to decomposition.
11. TOXICOLOGICAL INFORMATION

Health Hazard Summary
Slightly corrosive. Avoid eye or skin contact or dust inhalation. This product has the potential to cause acute and chronic health effects with over exposure. 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. Crystalline silica and hexavalent chromium compounds are classified as carcinogenic to humans (IARC Group 1).

Eye
Corrosive. Severe irritant upon contact with powder/dust. Over exposure may result in pain, redness, corneal burns and ulceration with possible permanent damage.

Inhalation
Slightly corrosive. Over exposure may result in severe mucous membrane irritation and bronchitis. Hexavalent chromium is reported to cause respiratory sensitisation, however due to the trace amount present, a hazard is not anticipated under normal conditions of use.

Skin
Slightly corrosive. 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.

Toxicity Data
SILICA, CRYSTALLINE – QUARTZ (14808-60-7)
Carcinogenicity: Classified as a human carcinogen (IARC Group 1)
CHROMIUM (VI) (18540-29-9)
Carcinogenicity: Confirmed human carcinogen (IARC Group 1)
Health Surveillance: Required [NOHSC:1005(1994)]

12. ECOLOGICAL INFORMATION

Environment
Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

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.

14. TRANSPORT INFORMATION

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

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

Shipping Name None Allocated
UN No None Allocated
DG Class None Allocated
Hazchem Code None Allocated
Subsidiary Risk(s) None Allocated
pkg Group None Allocated
EPG 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 Drugs and Poisons (SUSDP).

AICS
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. The dermatitis is due to the presence of soluble (hexavalent) chromium.

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 MSDS 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 MSDS 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.
WES-TWA – Workplace Exposure Standard – Time Weighted Average

Report Status

This document has been compiled by Adelaide Brighton Cement the manufacturer of the product and serves as the manufacturer’s Material Safety Data Sheet (“MSDS”).

While Adelaide Brighton Cement has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Adelaide Brighton Cement accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.
Contact Point

For further information on this product contact:

Telephone:  Office hours  08 8300 0300
            After hours  08 8300 0530
Facsimile:   08 8341 1591

Advice Note

The information in this document is believed to be accurate. Please check the currency of this MSDS by contacting:

08 8300 0300
or
http://www.adelaidebrighton.com.au

The provision of this information should not be construed as a recommendation to use this product in violation of any patent rights or in breach of any statute or regulation. Users are advised to make their own determination as to the suitability of this information in relation to their particular purposes and specific circumstances. Users should read this MSDS 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.