

## **Cement Test Certificate**

Lot 242 Russell Road East, Munster WA 6166 PO Box 38, Hamilton Hill WA 6963 T: +61 8 9411 1000 F: +61 8 9411 1150 Type GP General Purpose Cement

Final

ABN 50 006 673 470

| Reportable Pr                        | operty Test                  | t Mothod                                      | <b>Requirements of</b> | Pocult  |  |
|--------------------------------------|------------------------------|---|------------------------|---------|--|
| Minor Additional Constituents        |                              |   | Max 5 %                | Nil     |  |
| Calcium Sulphate                     |                              |   |                        | <5 %    |  |
| Mineral Addition                     |                              |   | Max 7.5 %              | <7.5 %  |  |
| Ground Granulated Iron Blast-Furnace | Slag                         |   |                        | Nil     |  |
| Clinker                              |                              |   |                        | >86.5 % |  |
| Nominal Blend                        |                              | Requirements                                  |                        | Result  |  |
|                                      | Sample Date:                 | 3/04/2018                                     |                        |         |  |
|                                      | Produced At:<br>Sample Code: | Cockburn Cement, Kwinana Plant, WA<br>B062af2 |                        |         |  |
|                                      |                              |   |                        |         |  |
| Test Certificate Num                 | Test Certificate Number:     | per: 180420                                   |                        |         |  |
| Product Certified:                   |                              | Type GP General Purpose Cement                |                        |         |  |

| Reportable Property                           | Test Method | AS3972       | Result    |
|---|-------------|--------------|-----------|
| 3 Day Strength                                | AS2350.11   | N/R          | 43.4 MPa  |
| 7 Day Strength                                | AS2350.11   | Min 35.0 MPa | 52.2 MPa  |
| 28 Day Strength                               | AS2350.11   | Min 45.0 MPa | 63.8 MPa  |
| Initial Set Time                              | AS2350.4    | Min 45 min   | 135 min   |
| Final Set Time                                | AS2350.4    | Max 360 min  | 210 min   |
| Soundness                                     | AS2350.5    | Max 5 mm     | 1 mm      |
| Sulfuric Anhydride content (SO <sub>3</sub> ) | AS2350.2    | Max 3.5 %    | 3.4 %     |
| Chloride Ion                                  | BH-TM-0507  | Max 0.10 %   | 0.012 %   |
| Other Properties                              |             |              |           |
| SiO <sub>2</sub>                              | AS2350.2    | N/R          | 20.1 %    |
| Al <sub>2</sub> O <sub>3</sub>                | AS2350.2    | N/R          | 5.5 %     |
| Fe <sub>2</sub> O <sub>3</sub>                | AS2350.2    | N/R          | 2.8 %     |
| CaO   | AS2350.2    | N/R          | 63.1 %    |
| MgO   | AS2350.2    | N/R          | 1.6 %     |
| Na <sub>2</sub> O Equivalent                  | AS2350.2    | N/R          | 0.5 %     |
| Loss on Ignition                              | AS2350.2    | N/R          | 1.9 %     |
| Fineness Index                                | AS2350.8    | N/R          | 410 m²/kg |
| Normal Consistency                            | AS2350.3    | N/R          | 30.8 %    |

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## REMARKS

These test result apply specifically to the sample as received at the Adelaide Brighton Cement Birkenhead Laboratory (Accreditation number: 252), 62 Elder Rd Birkenhead SA 5015.

This despatch grab sample complies to the requirements of AS3972:2010, Type GP Cement. N/R = No Requirement



Accredited for compliance with ISO/IEC 17025 - Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

**Approved Signatory** F. Pope

Issue Date:

30/05/2018