

## **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

Final

ABN 50 006 673 470

|               |                          |   | 06 5 04    |
|---------------|--------------------------|---|------------|
| Nominal Blend |                          | Requirements                            | Result     |
|               | Sample Date:             | 8/10/2018                               |            |
|               | Sample Code:             | B067bfc                                 |            |
|               | Despatched From:         | Cockburn Cement, Port Hedland Plant, WA |            |
|               | Test Certificate Number: | 180872                                  |            |
|               | Product Certified:       | Type GP General Purpose Cement          | irncement. |
| 013410        |                          |   |            |

| 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 % |

| Papartable Droparty                           | Test Method | <b>Requirements of</b> | Result    |
|---|-------------|------------------------|-----------|
| Reportable Property                           | rest method | AS3972                 | Result    |
| 3 Day Strength                                | AS2350.11   | N/R                    | 35.7 MPa  |
| 7 Day Strength                                | AS2350.11   | Min 35.0 MPa           | 54.0 MPa  |
| 28 Day Strength                               | AS2350.11   | Min 45.0 MPa           | 66.7 MPa  |
| Initial Set Time                              | AS2350.4    | Min 45 min             | 105 min   |
| Final Set Time                                | AS2350.4    | Max 360 min            | 180 min   |
| Soundness                                     | AS2350.5    | Max 5 mm               | 0 mm      |
| Sulfuric Anhydride content (SO <sub>3</sub> ) | AS2350.2    | Max 3.5 %              | 3.0 %     |
| Chloride Ion                                  | BH-TM-0507  | Max 0.10 %             | 0.005 %   |
| Other Properties                              |             |                        |           |
| SiO <sub>2</sub>                              | AS2350.2    | N/R                    | 19.2 %    |
| Al <sub>2</sub> O <sub>3</sub>                | AS2350.2    | N/R                    | 5.3 %     |
| Fe <sub>2</sub> O <sub>3</sub>                | AS2350.2    | N/R                    | 3.0 %     |
| CaO   | AS2350.2    | N/R                    | 64.5 %    |
| MgO   | AS2350.2    | N/R                    | 1.1 %     |
| Na <sub>2</sub> O Equivalent                  | AS2350.2    | N/R                    | 0.4 %     |
| Loss on Ignition                              | AS2350.2    | N/R                    | 2.3 %     |
| Fineness Index                                | AS2350.8    | N/R                    | 340 m²/kg |
| Normal Consistency                            | AS2350.3    | N/R                    | 27.5 %    |

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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:

19/11/2018