

STANDARD FLY ASH CERTIFICATE



FINAL
Prior Reports: None

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Certificate Number: CERT200426
Issued: 27 February 2020

Product being certified: Collie Monthly Grab Fly Ash
Product sample date: 04-Feb-2020
Sample Identification: Sample Code: 20020669
Source Power Station: Collie Power Station
Sample Condition: Tested as Received. Testing Commenced on 17-Feb-2020
Certifying Laboratory: Cement Australia - Darra Laboratory,
18 Station Avenue, Darra Queensland 4076 Australia.

Test Results

| Test | Moisture % | Fineness @ 45 micron % Passed | Loss on Ignition % | Sulfuric Anhydride % | Available Alkali % | Chloride Ion % | Chemical Composition % |
|-------------|---------------|-------------------------------------|--------------------------|----------------------------|--------------------------|----------------------|------------------------------|
| Result | < 0.1 | 85 | 0.5 | 0.2 | n/a | < 0.001 | 94.5 |
| Test Method | AS3583.2 | AS3583.1 | AS3583.3 | AS2350.2 | AS3583.12 | AS3583.13 | AS2350.2 |
| AS 3582.1 | 0.5% Maximum | 75% Minimum | 4.0 % Maximum | 3.0% Maximum | - | 0.1 % Maximum | 70% Minimum |

| Test | Relative Density | Relative Water Requirement % | Strength Index 7 Day Acc. % | Reference Cement Details |
|-------------|---------------------|------------------------------------|-----------------------------------|---|
| Result | 2.39 | 95 | 98 | Identification:: 20020763 Source: Goliath GP |
| Test Method | AS3583.5 | AS3583.6 | AS3583.6 | Product Type: Type GP |
| AS 3582.1 | - | - | 75% Minimum | Sample Date: 19-Feb-20 |

Additional Testing - Oxides

| Test | CaO by XRF % | SiO ₂ by XRF % | Al ₂ O ₃ by XRF % | Fe ₂ O ₃ by XRF % | SO ₃ by XRF % | MgO by XRF % | Na ₂ O by XRF % |
|-------------|--------------------|---------------------------------|---|---|--------------------------------|--------------------|----------------------------------|
| Result | 0.9 | 61.3 | 23.1 | 10.1 | 0.2 | 0.7 | 0.30 |
| Test Method | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 |

| Test | K ₂ O by XRF % | SrO by XRF % | TiO ₂ by XRF % | P ₂ O ₅ by XRF % | Mn ₂ O ₃ by XRF % | Total Alkali (NaEQ) % |
|-------------|---------------------------------|--------------------|---------------------------------|--|---|-----------------------------|
| Result | 0.52 | 0.1 | 1.5 | 0.6 | < 0.1 | 0.64 |
| Test Method | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 | AS2350.2 |

This sample grade conforms to the following requirements of AS 3582.1:2016

| Special | Grade 1 | Grade 2 |
|---------|---------|---------|
| | X | |

Approved Signatory



A Prem
Signatory - Cement Australia
Chemical Testing
Construction Materials Testing

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.

Cement Australia - Darra Laboratory
NATA Accredited Laboratory Numbers
187 188



ACCREDITED FOR
**TECHNICAL
COMPETENCE**

Notes:

