

**Boral Construction Materials
Materials Technical Services**

Unit 4, 3-5 Gibbon Road
Baulkham Hills NSW 2153 Australia
PO Box 400, Winston Hills NSW 2153

T: +61 (02) 9624 9900

F: +61 (02) 9624 9999

www.boral.com.au

TEST REPORT

CLIENT: XYPEX AUSTRALIA
190, Toongabbie Road Girraween NSW 2145.

FILE No.: 256/15

PROJECT: Testing of Silica fume sample for month of March' 2015.

REQUEST No.: 61387

**TEST PROCEDURE: Boral Chemical Method 2 – Determination of metal oxides by
Lithium Meta Borate Fusion and analysed using ICP**

Laboratory Sample No.: 163772
Date Sampled: March '2015.
Date Received: 11/03/2015
Sample Description: Ecotec Silica
Fume March'
2015.
Field No.: 1

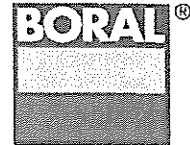
TEST RESULTS

Silicon as SiO₂ (%) 88.5

Sample submitted by the Client.

A handwritten signature in black ink, appearing to read "Nanthini S".

Nanthini S
Analytical Chemist
09th April 2015.
M.Hanlon, Mat. File, File.



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/15

ADDRESS: 190 Toongabbie road, Girraween, NSW 2145

REQUEST NO: 61387

LAB SAMPLE NO: 163772

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for March. 2015.

IDENTIFICATION OF CEMENT USED: Boral Cement SL Berrima – ID # 203-301-004-Jan.2015

TEST METHOD: ASTM C-1240 Use of Silica Fume as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar & Grout

Accelerated Pozzolanic Strength Activity Index With Portland Cement - ASTM C1240

Date Cast: 12-03-15

Date Crushed: 19-03-15 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	106 % @ 7 Days
	Control Mix Strength:	37.0 MPa
	Test Mix Strength:	39.4 MPa

Note:

Test mix used 242 mls of water and 2.3 grams of Dry Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 105%.

Mark Hanlon, Mat. File, File

Muans Abduinebe



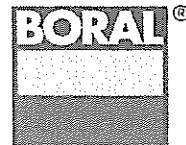
Approved Signatory _____

Date 18-03-15 Serial No. 135246

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 547


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TEST REPORT
CLIENT: XYPEX AUSTRALIA

Address: 190 Toongabbie Road Girraween, NSW 2145

FILE NO: 256/15**REQUEST NO: 61387****LAB. SAMPLE NO: 163772****SOURCE OF SAMPLE:** Unknown**SAMPLE IDENTIFICATION:** Ecotec Silica Fume – Monthly Sample for March. 2015.**TEST METHOD:** AS3583: Methods of test for supplementary cementitious materials for use with Portland Cement

PROPERTY	DATE TESTED	RESULT	TEST METHOD	AS3582 SPEC.
Moisture content	18-03-15	0.5%	AS3583.2	Max. 3.0%
Loss on ignition	18-03-15	2.5%	AS3583.3	Max. 6.0%
Relative Density	18-03-15	2.25	AS3583.5	

Sample submitted by the client.

Mark Hanlon, Mat. File, File

Safwan Fawal



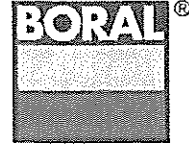
Approved Signatory _____

Date 23/03/2015Serial No. 135247TECHNICAL
COMPETENCE

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 547



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TEST REPORT

CLIENT: XYPEX AUSTRALIA
190 Toongabbie Road Girraween NSW 2145.

FILE No.:256/15

PROJECT: Testing of Silica Fume sample for month of March' 2015.

REQUEST No.: 61387

TEST PROCEDURE: AS 3583.13 – Determination of Chloride Ion content
AS 3583.8 – Determination of Sulfuric Anhydride content

Laboratory Sample No.: 163772
Date Sampled: 11/03/15
Date Received: 11/03/2015
Sample Description: Ecotec Silica Fume
Testing monthly sample
for March 2015.
Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.224
Sulphate as SO₃ (%) 0.6

Samples submitted by the Client.

M.Hanlon, M.File, File.

Nanthini Selvadurai



Approved Signatory

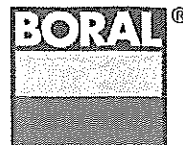
Date 10-04-15

Serial No. 135249

NATA Accredited Laboratory

Number: 9968

Accredited for compliance with ISO/IEC 17025



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Test Report

CLIENT: XYPEX AUSTRALIA
190 Toongabbie Road, Girraween, NSW 2145.

FILE No.:256/15

PROJECT: Testing of Silica Fume Sample for month of March 2015.

REQUEST No.: 61387

TEST PROCEDURE:

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 163772
Date Sampled: March' 2015.
Date Received: 11/03/2015.
Sample Description: Ecotec Silica Fume
Testing – Monthly Sample
for March 2015.

Field No.: 1

TEST RESULTS

Sodium as Na₂O (%) 0.11
Potassium as K₂O (%) 0.20
Available Alkali (%) 0.2

Available Alkali (%) = Na₂O (%) + (0.658 x K₂O %)

Samples submitted by the Client.

M.Hanlon, Mat. File, File.



Approved Signatory

Nanthini.Selvadurai

Date 10-04-15

Serial No. 135248

NATA Accredited Laboratory

Accredited for compliance with ISO/IEC 17025

Number: 9968

Boral
Construction
Materials



MATERIALS TECHNICAL SERVICES
BORAL RESOURCES (NSW) PTY LTD
ABN 51 000 756 507

Unit 4, 3-5 Gibbon Road
Baulkham Hills NSW 2153 Australia
PO Box 400, Winston Hills NSW 2153
Telephone 61 2 9624 9900
Facsimile 61 2 9624 9999
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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/15

ADDRESS: 190 Toongabbie Road, Girraween, NSW 2145

REQUEST NO: 61387

LAB. SAMPLE NO: 163772

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for March. 2015

Bulk Density - AS3582.3.6.5

Result: 644 Kg/m³

Mark Hanlon, Mat. File, File

A handwritten signature in black ink, appearing to read "Xiaole Cui".

Xiaole Cui
20-03-2015



Particle & Surface Sciences Pty. Limited

PO Box 1926, Gosford, NSW, Australia 2250. Tel: (61) 02 43 237822 Fax: (61) 02 43 237629 Email: info@pss.aus.net

DataMaster V4.03 U

Unit 0

Serial #: 909

Page 1

Sample ID: Ecotec-Monthly Sample-March 2015-LSN:163772
Setup ID: None
Converted from:: L:/GEMINI/DATA/L192/4959/163772.MGD
File: L:\...4959\163772.DMT

Started: 27/03/2015 8:27:00AM
Completed: 27/03/2015 9:33:47AM
Report Time: 27/03/2015 11:11:18AM
Sample Mass: 0.8511 g
Equilibration Interval: 10 s
Sample Density: 1.000 g/cm³

Analysis Adsorptive: N2
Analysis Bath Temp.: 77.150 K
Thermal Correction: No
Warm Free Space: -1.3762 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

Summary Report

Surface Area

Single point surface area at $p/p^\circ = 0.200724430$: 19.8881 m²/g

BET Surface Area: 20.5884 m²/g

Langmuir Surface Area: 28.0387 m²/g



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DataMaster V4.03 U

Unit 0

Serial #: 909

Page 4

Sample ID: Ecotec-Monthly Sample-March 2015-LSN:163772
Setup ID: None
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Analysis Adsorptive: N2
Analysis Bath Temp.: 77.150 K
Thermal Correction: No
Warm Free Space: -1.3762 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

BET Surface Area Report

BET Surface Area: 20.5884 ± 0.0548 m²/g

Slope: 4.699879 ± 0.012503 g/mmol

Y-Intercept: 0.039348 ± 0.001696 g/mmol

C: 120.444069

Qm: 0.21100 mmol/g

Correlation Coefficient: 0.9999858

Molecular Cross-Sectional Area: 0.1620 nm²

Relative Pressure (p/p ⁰)	Quantity Adsorbed (mmol/g)	1/[Q(p ⁰ p - 1)]
0.050286994	0.19176	0.27612
0.080452863	0.20915	0.41832
0.110536560	0.22248	0.55859
0.140544399	0.23421	0.69820
0.170672337	0.24496	0.84012
0.200724430	0.25502	0.98477



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DataMaster V4.03 U

Unit 0

Serial #: 909

Page 6

Sample ID: Ecotec-Monthly Sample-March 2015-LSN:163772
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Converted from:: L:/GEMINI/DATA/L192/4959/163772.MGD
File: L:\...4959\163772.DMT

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Completed: 27/03/2015 9:33:47AM
Report Time: 27/03/2015 11:11:18AM
Sample Mass: 0.8511 g
Equilibration Interval: 10 s
Sample Density: 1.000 g/cm³

Analysis Adsorptive: N2
Analysis Bath Temp.: 77.150 K
Thermal Correction: No
Warm Free Space: -1.3762 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

Langmuir Surface Area Report

Langmuir Surface Area: 28.0387 ± 0.7742 m²/g
Slope: 3.479943 ± 0.096092 g/mmol
Y-Intercept: 10.659500 ± 1.374476 kPa·g/mmol
b: 0.326464 1/kPa
Qm: 0.28736 mmol/g
Correlation Coefficient: 0.998479
Molecular Cross-Sectional Area: 0.1620 nm²

Pressure (kPa)	Quantity Adsorbed (mmol/g)	p/Q (kPa·g/mmol)
5.3028987	0.19176	27.653
8.4839707	0.20915	40.564
11.6563775	0.22248	52.394
14.8207847	0.23421	63.279
17.9978567	0.24496	73.473
21.1669308	0.25502	83.002