



**Boral Construction Materials**

**Materials Technical Services**

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

T: +61 2 9624 9900  
F: +61 2 9624 9999

www.boral.com.au

**Test Report**

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.:256/12

PROJECT: Testing of Silica Fume Sample for May 2012.

REQUEST No.: 47901

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

Laboratory Sample No.: 128791  
Date Sampled: Unknown  
Date Received: 22/05/12  
Sample Description: Ecotec Silica  
Fume Sample for  
May 2012.

Field No.: 1

**TEST RESULTS**

Silicon as SiO<sub>2</sub> (%) 89.7

Sample submitted by the client.

Nanthini Selvadurai  
Analytical Chemist  
12<sup>th</sup> June 2012.  
D. Rowley, File



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**TEST REPORT**

**CLIENT:** XYPEX AUSTRALIA  
Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO:** 256/12

**SOURCE OF SAMPLE:** Unknown

**LAB SAMPLE NO:** 128791

**REQUEST NO:** 47901

**SAMPLE IDENTIFICATION:** Ecotec Silica Fume – Monthly Sample for May 2012.

**IDENTIFICATION OF CEMENT USED:** Boral Cement SL Berrima – ID # 87223

**TEST METHOD:** ASTM C-1240-05 Use of Silica Fume as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar & Grout

**Accelerated Pozzolanic Strength Activity Index With Portland Cement - ASTM C1240-05**

**Date Cast:** 23-05-12

**Date Crushed:** 30-05-12 @ 7 Days

<b>Results:</b>	<b>Accelerated Pozzolanic Strength Activity Index:</b>	108% @ 7 Days
	<b>Control Mix Strength:</b>	39.9 MPa
	<b>Test Mix Strength:</b>	43.0 MPa

**Note:**

Test mix used 242 mls of water and 5.80 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 102%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory \_\_\_\_\_  
Date 20-06-12 Serial No. 106317

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NATA Accredited Laboratory  
Number: 547



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### TEST REPORT

**CLIENT: XYPEX AUSTRALIA**  
Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO: 256/12**

**REQUEST NO: 47901**

**LAB. SAMPLE NO: 128791**

**SOURCE OF SAMPLE: Unknown**

**SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for May 2012.**

**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	30-05-12	0.8%	AS3583.2	Max. 3.0%
Loss on ignition	30-05-12	1.6 %	AS3583.3	Max. 6.0%
Relative Density	30-05-12	2.27	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory \_\_\_\_\_  
Date 30/05/2012 Serial No. 106318

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Number: 547



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

Test Report

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.:256/12

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 47901

**TEST PROCEDURE:**

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 128791  
Date Sampled: Unknown  
Date Received: 22/05/12  
Sample Description: Ecotec Silica Fume  
sample for May 2012.

Field No.: 1

TEST RESULTS

Sodium as Na<sub>2</sub>O (%) 0.13  
Potassium as K<sub>2</sub>O (%) 0.15  
Available Alkali (%) 0.2

Available Alkali (%) = Na<sub>2</sub>O (%) + (0.658 x K<sub>2</sub>O %)

Samples submitted by the Client.

D. Rowley, File



ACCREDITED FOR  
TECHNICAL  
COMPETENCE

Approved Signatory Nall S Nanthini Selvadurai  
Date 22-06-12 Serial No. 106319

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NATA Accredited Laboratory  
Number: 9968



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

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Facsimile 61 2 9624 9999

**Test Report**

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.: 256/12

PROJECT: Testing of Silica Fume Sample for May 2012.

REQUEST No.: 47901

TEST PROCEDURE: AS3583.13 – Determination of Chloride Ion Content  
AS3583.8 – Determination of Sulfuric Anhydride content

Laboratory Sample No.: 128791  
Date Sampled: Unknown  
Date Received: 22/05/12  
Sample Description: Ecotec Silica Fume  
Sample for May 2012  
Field No.: 1

**TEST RESULTS**

Chloride as Cl<sup>-</sup> (%) 0.117  
Sulphate as SO<sub>3</sub> (%) 0.6

Samples submitted by the Client.

D. Rowley , File



Approved Signatory Nalil S Nanthini Selvadurai  
Date 04-06-12 Serial No. 106320

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Number: 9968



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**FILE NO: 256/12**

**TEST REPORT**

**CLIENT: XYPEX AUSTRALIA**

Address: 9/177 Arthur Street Homebush West NSW 2140

**REQUEST NO: 47901**

**LAB. SAMPLE NO: 128791**

**SOURCE OF SAMPLE: Unknown**

**SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for May 2012**

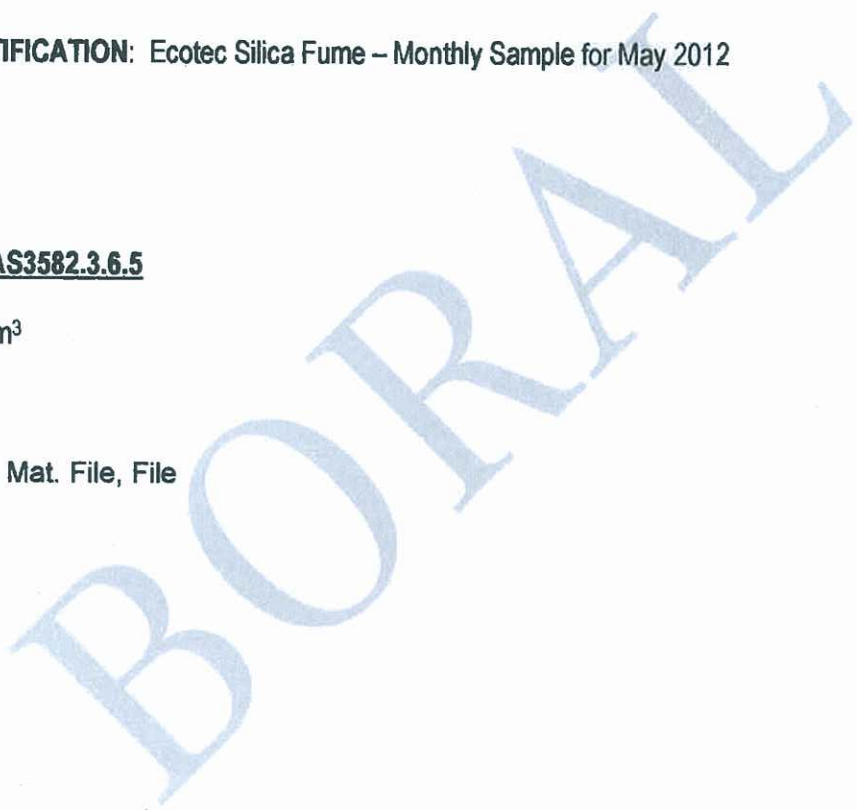
**Bulk Density - AS3582.3.6.5**

**Result: 606 Kg/m<sup>3</sup>**

Daniel Rowley, Mat. File, File

A handwritten signature in black ink, appearing to read "Oscar Perez", is written over a horizontal line.

Oscar Perez  
30-05-2012





# 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 V4.03.01

Unit 0

Serial #: 909

Page 1

Sample ID: Silica Fume Ecotec-Monthly-May2012-LSN-128791  
Setup ID: None  
Converted from:: L:/GEMINI/DATA/L192/4339/128791.MGD  
File: L:\...4339\128791.DMT

Started: 12/06/2012 9:57:48AM  
Completed: 12/06/2012 11:25:30AM  
Report Time: 12/06/2012 12:00:41PM  
Sample Mass: 0.8967 g  
Equilibration Interval: 10 s  
Sample Density: 1.000 g/cm<sup>3</sup>

Analysis Adsorptive: N2  
Analysis Bath Temp.: 77.150 K  
Thermal Correction: No  
Warm Free Space: -1.5272 cm<sup>3</sup> Measured  
Low Pressure Dose: None  
Automatic Degas: No

## Summary Report

### Surface Area

Single point surface area at  $p/p^{\circ} = 0.200760916$ : 21.1685 m<sup>2</sup>/g

BET Surface Area: 21.9199 m<sup>2</sup>/g

Langmuir Surface Area: 29.8427 m<sup>2</sup>/g



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Unit 0

Serial #: 909

Page 4

Sample ID: Silica Fume Ecotec-Monthly-May2012-LSN-128791  
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Completed: 12/06/2012 11:25:30AM	Analysis Bath Temp.: 77.150 K
Report Time: 12/06/2012 12:00:41PM	Thermal Correction: No
Sample Mass: 0.8967 g	Warm Free Space: -1.5272 cm <sup>3</sup> Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm <sup>3</sup>	Automatic Degas: No

### BET Surface Area Report

BET Surface Area: 21.9199 ± 0.0501 m<sup>2</sup>/g  
Slope: 0.196972 ± 0.000450 g/cm<sup>3</sup> STP  
Y-Intercept: 0.001624 ± 0.000061 g/cm<sup>3</sup> STP  
C: 122.290250  
Qm: 5.0354 cm<sup>3</sup>/g STP  
Correlation Coefficient: 0.9999818  
Molecular Cross-Sectional Area: 0.1620 nm<sup>2</sup>

Relative Pressure (p/p <sup>0</sup> )	Quantity Adsorbed (cm <sup>3</sup> /g STP)	1/[Q(p <sup>0</sup> p - 1)]
0.050201420	4.5804	0.011539
0.069051727	4.8566	0.015273
0.087902039	5.0831	0.018960
0.106713982	5.2808	0.022622
0.125487561	5.4594	0.026284
0.144254749	5.6252	0.029967
0.162989955	5.7843	0.033665
0.181968145	5.9372	0.037467
0.200760916	6.0842	0.041285



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DataMaster V4.03.01

Unit 0

Serial #: 909

Page 6

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Started: 12/06/2012 9:57:48AM	Analysis Adsorptive: N2
Completed: 12/06/2012 11:25:30AM	Analysis Bath Temp.: 77.150 K
Report Time: 12/06/2012 12:00:41PM	Thermal Correction: No
Sample Mass: 0.8967 g	Warm Free Space: -1.5272 cm <sup>3</sup> Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm <sup>3</sup>	Automatic Degas: No

### Langmuir Surface Area Report

Langmuir Surface Area: 29.8427 ± 0.5883 m<sup>2</sup>/g  
Slope: 0.145871 ± 0.002876 g/cm<sup>3</sup> STP  
Y-Intercept: 3.335944 ± 0.302579 mmHg·g/cm<sup>3</sup> STP  
b: 0.043727 1/mmHg  
Qm: 6.8554 cm<sup>3</sup>/g STP  
Correlation Coefficient: 0.998642  
Molecular Cross-Sectional Area: 0.1620 nm<sup>2</sup>

Pressure (mmHg)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	p/Q (mmHg·g/cm <sup>3</sup> STP)
39.255001	4.5804	8.570
53.994999	4.8566	11.118
68.735001	5.0831	13.522
83.445000	5.2808	15.802
98.125000	5.4594	17.974
112.800003	5.6252	20.052
127.449997	5.7843	22.034
142.289993	5.9372	23.966
156.985001	6.0842	25.802