



**Boral Construction Materials**

**Materials Technical Services**

Unit 4, 3-5 Gibbon Road  
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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.

REQUEST No.: 46842

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

Laboratory Sample No.: 125958  
Date Sampled: Unknown  
Date Received: 28/02/12  
Sample Description: Ecotec Silica  
Fume - Monthly  
February '12.

Field No.: 1

**TEST RESULTS**

Silicon as SiO<sub>2</sub> (%) 89.6

Sample submitted by the client.

*Nall. S*  
Nanthini Selvadurai  
Analytical Chemist  
16<sup>th</sup> March 2011  
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:** 125958

**REQUEST NO:** 46842

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

**IDENTIFICATION OF CEMENT USED:** Boral Cement SL Berrima – ID # 64514

**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:** 28-02-12

**Date Crushed:** 06-03-12 @ 7 Days

<b>Results:</b>	<b>Accelerated Pozzolanic Strength Activity Index:</b>	107% @ 7 Days
	<b>Control Mix Strength:</b>	40.5 MPa
	<b>Test Mix Strength:</b>	43.3 MPa

**Note:**

Test mix used 242 mls of water and 6.2 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 109%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory \_\_\_\_\_

Date 6-03-12 Serial No. 104089

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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:** 46842

**LAB. SAMPLE NO:** 125958

**SOURCE OF SAMPLE:** Unknown

**SAMPLE IDENTIFICATION:** Ecotec Silica Fume –Monthly Sample for February 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	28-02-12	1.3 %	AS3583.2	Max. 3.0%
Loss on ignition	28-02-12	2.7 %	AS3583.3	Max. 6.0%
Relative Density	28-02-12	2.26	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory \_\_\_\_\_  
Date 7/03/2012 Serial No. 104090

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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  
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**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.: 46842

**TEST PROCEDURE:**

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 125958  
Date Sampled: Unknown  
Date Received: 28/02/12  
Sample Description: Ecotec Silica Fume -  
Monthly February '12.

Field No.: 1

**TEST RESULTS**

Sodium as Na<sub>2</sub>O (%) 0.47  
Potassium as K<sub>2</sub>O (%) 0.54  
Available Alkali (%) 0.8

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

Samples submitted by the Client.

D. Rowley, File



Approved Signatory Nat S Nanthini Selvadurai  
Date 30-03-12 Serial No. 104091

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Telephone 61 2 9624 9900  
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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.: 46842

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

Laboratory Sample No.: 125958  
Date Sampled: Unknown  
Date Received: 28/02/12  
Sample Description: Ecotec Silica Fume -  
Monthly February '12  
Field No.: 1

TEST RESULTS

Chloride as CF (%) 0.330  
Sulphate as SO<sub>3</sub> (%) 0.5

Samples submitted by the Client.

D. Rowley , File



Approved Signatory Nal-S Nanthini Selvadurai  
Date 16-03-12 Serial No. 104092

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NATA Accredited Laboratory  
Number: 9968



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**TEST REPORT**

**CLIENT: XYPEX AUSTRALIA**

Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO: 256/12**

**REQUEST NO: 46842**

**LAB. SAMPLE NO: 125958**

**SOURCE OF SAMPLE: Unknown**

**SAMPLE IDENTIFICATION: Ecotec Silca Fume -Monthly Sample for February 2012.**

**Bulk Density - AS3582.3.6.5**

**Result: 624 Kg/m<sup>3</sup>**

A handwritten signature in black ink, appearing to read "Oscar Perez", is written over a large, light blue, diagonal watermark that says "BORAL".

Oscar Perez

07-03-2012

Daniel Rowley, Mat. File, File

Sample ID: Silica Fume Ecotec-Monthly-February2012-LSN:125958

Setup ID: None

Converted from:: L:/GEMINI/DATA/L192/4291/125958.MGD

File: L:\...4291\125958.DMT

Started: 19/03/2012 1:38:32PM

Completed: 19/03/2012 3:03:11 PM

Report Time: 20/03/2012 9:44:07AM

Sample Mass: 0.7557 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: -1.1420 cm<sup>3</sup> Measured

Low Pressure Dose: None

Automatic Degas: No

### Summary Report

#### Surface Area

Single point surface area at  $p/p^\circ = 0.200863044$ : 18.8129 m<sup>2</sup>/g

BET Surface Area: 19.5413 m<sup>2</sup>/g

Langmuir Surface Area: 26.6742 m<sup>2</sup>/g



Sample ID: Silica Fume Ecotec-Monthly-February2012-LSN:125958
Setup ID: None
Converted from:: L:/GEMINI/DATA/L192/4291/125958.MGD
File: L:\...4291\125958.DMT

Started: 19/03/2012 1:38:32PM
Completed: 19/03/2012 3:03:11PM
Report Time: 20/03/2012 9:44:07AM
Sample Mass: 0.7557 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: -1.1420 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

BET Surface Area Report

BET Surface Area: 19.5413 ± 0.0282 m²/g
Slope: 0.220697 ± 0.000319 g/cm³ STP
Y-Intercept: 0.002072 ± 0.000043 g/cm³ STP
C: 107.529879
Qm: 4.4890 cm³/g STP
Correlation Coefficient: 0.9999927
Molecular Cross-Sectional Area: 0.1620 nm²

Table with 3 columns: Relative Pressure (p/p°), Quantity Adsorbed (cm³/g STP), and 1/[Q(p°p - 1)]. It contains 10 rows of data points.

Sample ID: Silica Fume Ecotec-Monthly-February2012-LSN:125958  
 Setup ID: None  
 Converted from:: L:/GEMINI/DATA/L192/4291/125958.MGD  
 File: L:\...4291\125958.DMT

Started: 19/03/2012 1:38:32PM	Analysis Adsorptive: N2
Completed: 19/03/2012 3:03:11PM	Analysis Bath Temp.: 77.150 K
Report Time: 20/03/2012 9:44:08AM	Thermal Correction: No
Sample Mass: 0.7557 g	Warm Free Space: -1.1420 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: 26.6742 ± 0.5692 m<sup>2</sup>/g  
 Slope: 0.163199 ± 0.003482 g/cm<sup>3</sup> STP  
 Y-Intercept: 3.887502 ± 0.362248 mmHg·g/cm<sup>3</sup> STP  
 b: 0.041980 1/mmHg  
 Qm: 6.1275 cm<sup>3</sup>/g STP  
 Correlation Coefficient: 0.998410  
 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)
38.810001	4.0286	9.634
53.360001	4.2753	12.481
67.919998	4.4792	15.164
82.464996	4.6605	17.694
96.964996	4.8243	20.099
111.529999	4.9781	22.404
126.080002	5.1247	24.603
140.679993	5.2721	26.684
155.235001	5.4079	28.705