



**Boral Construction Materials**

**Materials Technical Services**

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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 for October 2012.

REQUEST No.: 49888

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

Laboratory Sample No.: 134138  
Date Sampled: Unknown  
Date Received: 11/10/12  
Sample Description: Ecotec Silica  
Fume Sample for  
October 2012.

Field No.: 1

**TEST RESULTS**

Silicon as SiO<sub>2</sub> (%) 91.8

Sample submitted by the client.

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

Nanthini Selvadurai  
Analytical Chemist  
20<sup>th</sup> November 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

**REQUEST NO:** 49888

**LAB SAMPLE NO:** 134138

**SOURCE OF SAMPLE:** Unknown

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

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

**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:** 11-10-12

**Date Crushed:** 18-10-12 @ 7 Days

<b>Results:</b>	<b>Accelerated Pozzolanic Strength Activity Index:</b>	111% @ 7 Days
	<b>Control Mix Strength:</b>	35.8 MPa
	<b>Test Mix Strength:</b>	39.8 MPa

Note:

Test mix used 242 mls of water and 5.7 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 102%.

Daniel Rowley, Mat. File, File



Approved Signatory \_\_\_\_\_  
Date 2/11/12 Serial No. 111021

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Muans Abdulnebe

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: 49888**

**LAB. SAMPLE NO: 134138**

**SOURCE OF SAMPLE:** Unknown

**SAMPLE IDENTIFICATION:** Ecotec Silica Fume – Monthly Sample for October 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	11-10-12	0.9%	AS3583.2	Max. 3.0%
Loss on ignition	11-10-12	2.1 %	AS3583.3	Max. 6.0%
Relative Density	11-10-12	2.28	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory \_\_\_\_\_  
Date 2/11/2012 Serial No. 111022

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Number: 547



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

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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.: 49888

**TEST PROCEDURE:**

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 134138  
Date Sampled: Unknown  
Date Received: 11/10/12  
Sample Description: Ecotec Silica Fume sample  
for October 2012.

Field No.: 1

**TEST RESULTS**

Sodium as Na<sub>2</sub>O (%) 0.09  
Potassium as K<sub>2</sub>O (%) 0.10  
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 Nanthini Selvadurai  
Date 28-11-12 Serial No. 111023

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Number: 9968



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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 October 2012.

REQUEST No.: 49888

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

Laboratory Sample No.: 134138  
Date Sampled: Unknown  
Date Received: 11/10/12  
Sample Description: Ecotec Silica Fume  
Sample for October  
Field No.: 1

**TEST RESULTS**

Chloride as Cl<sup>-</sup> (%) 0.072  
Sulphate as SO<sub>3</sub> (%) 0.6

Samples submitted by the Client.

D. Rowley , File



Approved Signatory Nall S Nanthini Selvadurai  
Date 28-11-12 Serial No. 111024

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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: 49888**

**LAB. SAMPLE NO: 134138**

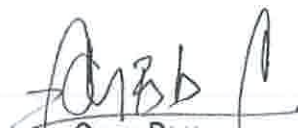
**SOURCE OF SAMPLE: Unknown**

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

**Bulk Density - AS3582.3.6.5**

**Result: 568 Kg/m<sup>3</sup>**

Daniel Rowley, Mat. File, File

  
Oscar Perez  
02-11-2012

Sample ID: Silica Fume Ecotec-Monthy-October 2012-LSN:134138  
Setup ID: None  
Converted from:: L:/GEMINI/DATA/L192/4435/134138.MGD  
File: L:\...4435\134138.DMT

Started: 15/11/2012 12:30:45PM	Analysis Adsorptive: N2
Completed: 15/11/2012 1:56:39PM	Analysis Bath Temp.: 77.150 K
Report Time: 15/11/2012 4:56:46PM	Thermal Correction: No
Sample Mass: 0.7231 g	Warm Free Space: -1.2127 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

### Summary Report

#### Surface Area

Single point surface area at  $p/p^{\circ} = 0.200684901$ : 21.4992 m<sup>2</sup>/g

BET Surface Area: 22.2797 m<sup>2</sup>/g

Langmuir Surface Area: 30.3496 m<sup>2</sup>/g



Sample ID: Silica Fume Ecotec-Monthy-October 2012-LSN:134138
Setup ID: None
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Sample Density: 1.000 g/cm³
Analysis Adsorptive: N2
Analysis Bath Temp.: 77.150 K
Thermal Correction: No
Warm Free Space: -1.2127 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

BET Surface Area Report

BET Surface Area: 22.2797 ± 0.0427 m²/g
Slope: 0.193733 ± 0.000371 g/cm³ STP
Y-Intercept: 0.001655 ± 0.000050 g/cm³ STP
C: 118.041923
Qm: 5.1180 cm³/g STP
Correlation Coefficient: 0.9999872
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-Monthy-October 2012-LSN:134138  
Setup ID: None  
Converted from: L:/GEMINI/DATA/L192/4435/134138.MGD  
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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: -1.2127 cm<sup>3</sup> Measured  
Low Pressure Dose: None  
Automatic Degas: No

**Langmuir Surface Area Report**

Langmuir Surface Area: 30.3496 ± 0.6098 m<sup>2</sup>/g  
Slope: 0.143435 ± 0.002882 g/cm<sup>3</sup> STP  
Y-Intercept: 3.284111 ± 0.299459 mmHg·g/cm<sup>3</sup> STP  
b: 0.043675 1/mmHg  
Qm: 6.9718 cm<sup>3</sup>/g STP  
Correlation Coefficient: 0.998590  
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)
38.814999	4.6374	8.370
53.290001	4.9205	10.830
67.889999	5.1530	13.175
82.459999	5.3544	15.401
96.879997	5.5341	17.506
111.449997	5.7059	19.532
125.934998	5.8700	21.454
140.475006	6.0273	23.306
155.005005	6.1787	25.087