



Boral Construction Materials

Materials Technical Services

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

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www.boral.com.au

Test Report

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

FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 45208

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

Laboratory Sample No.: 121645
Date Sampled: Unknown
Date Received: 10/10/11
Sample Description: Ecotec Silica
Fume - Monthly
October'11.

Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 88.3

Sample submitted by the client.

A handwritten signature in black ink, appearing to read "Nanthini".
Nanthini Selvadurai
Analytical Chemist
15th November 2011
D. Rowley, File



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TEST REPORT

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

FILE NO: 256/11

SOURCE OF SAMPLE: Unknown

LAB SAMPLE NO: 121645

REQUEST NO: 45208

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for October. 2011

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

TEST METHOD: ASTM C-1240-04 Use of Silica Fume as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar & Grout

Accelerated Pozzolanic Strength Activity Index With Portland Cement - ASTM C1240-04

Date Cast: 19-10-11

Date Crushed: 26-10-11 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	109% @ 7 Days
	Control Mix Strength:	40.5 MPa
	Test Mix Strength:	44.0 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 110%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory _____
Date 16/11/11 Serial No. 101223

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Number: 547



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TEST REPORT

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Address: 9/177 Arthur Street Homebush West NSW 2140

FILE NO: 256/11

REQUEST NO: 45208

LAB. SAMPLE NO: 121645

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for October 2011

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	19-10-11	1.0%	AS3583.2	Max. 3.0%
Loss on ignition	19-10-11	2.8 %	AS3583.3	Max. 6.0%
Relative Density	19-10-11	2.31	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory _____
Date 15/11/2011 Serial No. 101224

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MATERIALS TECHNICAL SERVICES
BORAL RESOURCES (NSW) PTY LTD
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Unit 4, 3-5 Gibbon Road
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PO Box 400, Winston Hills NSW 2153
Telephone 61 2 9624 9900
Facsimile 61 2 9624 9999

Test Report

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FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 45208

TEST PROCEDURE:
AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 121645
Date Sampled: Unknown
Date Received: 10/10/11
Sample Description: Ecotec Silica Fume -
Monthly October '11.

Field No.: 1

TEST RESULTS

Sodium as Na₂O (%) 0.04
Potassium as K₂O (%) 0.07
Available Alkali (%) 0.1

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

Samples submitted by the Client.

D. Rowley, File



Approved Signatory Nanthini Nanthini Selvadurai
Date 18-11-11 Serial No. 101221

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NATA Accredited Laboratory
Number: 9968



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Test Report

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

FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 45208

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

Laboratory Sample No.: 121645
Date Sampled: Unknown
Date Received: 10/10/11
Sample Description: Ecotec Silica Fume -
Monthly October '11
Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.268
Sulphate as SO₃ (%) 1.4

Samples submitted by the Client.

D. Rowley ,File



ACCREDITED FOR
TECHNICAL
COMPETENCE

Approved Signatory Nanthini Selvadurai
Date 18-11-11 Serial No. 101222

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TEST REPORT

CLIENT: XYPEX AUSTRALIA

Address: 9/177 Arthur Street Homebush West NSW 2140

FILE NO: 256/11

REQUEST NO: 45208

LAB. SAMPLE NO: 121645

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for October .2011

Bulk Density - AS3582.3.6.5

Result: 606 Kg/m³


Oscar Perez
14-11-2011

Daniel Rowley, Mat. File, File



Sample ID: Silica Fume Ecotec-Oct 2011-LSN-121645
Setup ID: None
Converted from:: L:/GEMINI/DATA/L192/4193/122506.MGD
File: L:\...4193\122506.DMT

Started: 22/11/2011 11:09:40AM	Analysis Adsorptive: N2
Completed: 22/11/2011 12:35:50PM	Analysis Bath Temp.: 77.150 K
Report Time: 28/11/2011 1:27:44PM	Thermal Correction: No
Sample Mass: 0.5671 g	Warm Free Space: -1.0428 cm ³ Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm ³	Automatic Degas: No

Summary Report

Surface Area

Single point surface area at $p/p^0 = 0.200823035$: 14.6308 m²/g

BET Surface Area: 15.4008 m²/g

Langmuir Surface Area: 21.1887 m²/g



Sample ID: Silica Fume Ecotec-Oct 2011-LSN-121645
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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: -1.0428 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

BET Surface Area Report

BET Surface Area: 15.4008 ± 0.0344 m²/g
Slope: 0.279092 ± 0.000626 g/cm³ STP
Y-Intercept: 0.003568 ± 0.000084 g/cm³ STP
C: 79.225770
Qm: 3.5378 cm³/g STP
Correlation Coefficient: 0.9999824
Molecular Cross-Sectional Area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p ^o /p - 1)]
0.050194381	3.0187	0.017507
0.069086346	3.2383	0.022917
0.087887302	3.4201	0.028174
0.106831276	3.5769	0.033440
0.125651729	3.7229	0.038602
0.144478689	3.8563	0.043792
0.163175622	3.9780	0.049018
0.182002572	4.0961	0.054320
0.200823035	4.2055	0.059752



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Report Time: 28/11/2011 1:27:45PM
Sample Mass: 0.5671 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: -1.0428 cm³ Measured
Low Pressure Dose: None
Automatic Degas: No

Langmuir Surface Area Report

Langmuir Surface Area: 21.1887 ± 0.4542 m²/g
Slope: 0.205449 ± 0.004404 g/cm³ STP
Y-Intercept: 5.619943 ± 0.456053 mmHg·g/cm³ STP
b: 0.036557 1/mmHg
Qm: 4.8674 cm³/g STP
Correlation Coefficient: 0.998396
Molecular Cross-Sectional Area: 0.1620 nm²

Table with 3 columns: Pressure (mmHg), Quantity Adsorbed (cm³/g STP), and p/Q (mmHg·g/cm³ STP). It contains 8 rows of data points.