



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.: 46241

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

Laboratory Sample No.: 124328
Date Sampled: Unknown
Date Received: 09/01/12
Sample Description: Ecotec Silica Fume - Monthly January '12.

Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 88.6

Sample submitted by the client.

Nal S
Nanthini Selvadurai
Analytical Chemist
20th February 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: 124328

REQUEST NO: 46241

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for January 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: 12-01-12

Date Crushed: 19-01-12 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	105% @ 7 Days
	Control Mix Strength:	40.8 MPa
	Test Mix Strength:	42.7 MPa


Note:

Test mix used 242 mls of water and 6.0 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 102%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory 
Date 23-02-12 Serial No. 103077

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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: 46241

LAB. SAMPLE NO: 124328

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for January 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	12-01-12	1.7 %	AS3583.2	Max. 3.0%
Loss on ignition	12-01-12	2.9 %	AS3583.3	Max. 6.0%
Relative Density	12-01-12	2.29	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory _____
Date 7/02/2012 Serial No. 103076

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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.: 46241

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

Laboratory Sample No.: 124328
Date Sampled: Unknown
Date Received: 09/01/12
Sample Description: Ecotec Silica Fume -
Monthly January '12.

Field No.: 1

TEST RESULTS

Sodium as Na₂O (%) 0.35
Potassium as K₂O (%) 0.46
Available Alkali (%) 0.7

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

Samples submitted by the Client.

D. Rowley, File



ACCREDITED FOR
TECHNICAL
COMPETENCE

Approved Signatory Nanthini Nanthini Selvadurai
Date 21-02-12 Serial No. 103078

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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.

REQUEST No.: 46241

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

Laboratory Sample No.: 124328
Date Sampled: Unknown
Date Received: 09/01/12
Sample Description: Ecotec Silica Fume -
Monthly January '12
Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.304
Sulphate as SO₃ (%) 0.4

Samples submitted by the Client.

D. Rowley , File



Approved Signatory NanS Nanthini Selvadurai
Date 21-02-12 Serial No. 103079

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TEST REPORT

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

FILE NO: 256/12

REQUEST NO: 46241

LAB. SAMPLE NO: 124328

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume -Monthly Sample for January 2012.

Bulk Density - AS3582.3.6.5

Result: 636 Kg/m³

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

Oscar Perez

07-02-2012

Daniel Rowley, Mat. File, File



Sample ID: January 2012- LSN:124328

Setup ID: None

Converted from:: L:/GEMINI/DATA/L192/4268/124328.MGD

File: L:\...4268\124328.DMT

Started: 21/02/2012 3:43:12PM

Completed: 21/02/2012 5:07:36PM

Report Time: 22/02/2012 3:57:44PM

Sample Mass: 0.5907 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: -0.9768 cm³ Measured

Low Pressure Dose: None

Automatic Degas: No

Summary Report

Surface Area

Single point surface area at $p/p^{\circ} = 0.201059071$: 18.7153 m²/g

BET Surface Area: 19.4428 m²/g

Langmuir Surface Area: 26.5280 m²/g

Sample ID: January 2012- LSN:124328
 Setup ID: None
 Converted from: L:/GEMINI/DATA/L192/4268/124328.MGD
 File: L:\...\4268\124328.DMT

Started: 21/02/2012 3:43:12PM	Analysis Adsorptive: N2
Completed: 21/02/2012 5:07:36PM	Analysis Bath Temp.: 77.150 K
Report Time: 22/02/2012 3:57:44PM	Thermal Correction: No
Sample Mass: 0.5907 g	Warm Free Space: -0.9768 cm ³ Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm ³	Automatic Degas: No

BET Surface Area Report

BET Surface Area: 19.4428 ± 0.0542 m²/g
 Slope: 0.221908 ± 0.000618 g/cm³ STP
 Y-Intercept: 0.001990 ± 0.000083 g/cm³ STP
 C: 112.490426
 Qm: 4.4663 cm³/g STP
 Correlation Coefficient: 0.9999728
 Molecular Cross-Sectional Area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p ^o p - 1)]
0.050256628	4.0208	0.013160
0.069138685	4.2686	0.017400
0.088001202	4.4754	0.021561
0.106733450	4.6569	0.025658
0.125478728	4.8208	0.029763
0.144380328	4.9729	0.033933
0.163249360	5.1185	0.038117
0.182079304	5.2510	0.042394
0.201059071	5.3811	0.046767

Sample ID: January 2012- LSN:124328
 Setup ID: None
 Converted from:: L:/GEMINI/DATA/L192/4268/124328.MGD
 File: L:\...4268\124328.DMT

Started: 21/02/2012 3:43:12PM	Analysis Adsorptive: N2
Completed: 21/02/2012 5:07:36PM	Analysis Bath Temp.: 77.150 K
Report Time: 22/02/2012 3:57:44PM	Thermal Correction: No
Sample Mass: 0.5907 g	Warm Free Space: -0.9768 cm ³ Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm ³	Automatic Degas: No

Langmuir Surface Area Report

Langmuir Surface Area: 26.5280 ± 0.5208 m²/g
 Slope: 0.164098 ± 0.003222 g/cm³ STP
 Y-Intercept: 3.819627 ± 0.333096 mmHg·g/cm³ STP
 b: 0.042962 1/mmHg
 Qm: 6.0939 cm³/g STP
 Correlation Coefficient: 0.998654
 Molecular Cross-Sectional Area: 0.1620 nm²

Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	p/Q (mmHg·g/cm ³ STP)
38.580002	4.0208	9.595
53.075001	4.2686	12.434
67.555000	4.4754	15.095
81.934998	4.6569	17.594
96.324997	4.8208	19.981
110.834999	4.9729	22.288
125.320000	5.1185	24.484
139.774994	5.2510	26.618
154.345001	5.3811	28.683