



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

Address: 9/177 Arthur Street Homebush West NSW 2140

FILE NO: 256/10

REQUEST NO.: 40698

LAB. SAMPLE NO: 109679

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for October 2010

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	01-11-10	1.0 %	AS3583.2	Max. 3.0%
Loss on ignition	01-11-10	3.1 %	AS3583.3	Max. 6.0%
Relative Density	01-11-10	2.25	AS3583.5	

- Sample submitted by the client and tested as received

Daniel Rowley, Mat. File, File

Safwan Fawal



Approved Signatory _____

Date 17/11/2010 Serial No. 91831

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FILE NO: 256/10

SOURCE OF SAMPLE: Unknown

LAB SAMPLE NO: 109679

REQUEST NO.: 40698

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for October 2010

IDENTIFICATION OF CEMENT USED: BCSC GP Cement – 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: 01-11-10

Date Crushed: 08-11-10 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	110 % @ 7 Days
	Control Mix Strength:	40.0 MPa
	Test Mix Strength:	44.1 MPa

Note:

Test mix used 242 mls of water and 6.1 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 109%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory _____

Date 17-11-10 Serial No. 91832

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TEST REPORT

CLIENT: XYPEX AUSTRALIA

Address: 9/177 Arthur Street Homebush West NSW 2140

FILE NO: 256/10

REQUEST NO.: 40698

LAB. SAMPLE NO: 109679

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume -Monthly Sample for October 2010

Bulk Density - AS3582.3.6.5

Result: 553 Kg/m³

Fineness by 45 µm sieve (Retained) - ASTM C430

Result: 37 %

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

Tatiana Lysova
16-11-2010

Daniel Rowley, Mat. File, File

Sample ID: 109679
Setup ID: None
Converted from:: L:/GEMINI/DATA/L192/3917/109679.MGD
File: L:\...3917\109679.DMT

Started: 6/12/2010 10:09:40AM	Analysis Adsorptive: N2
Completed: 6/12/2010 11:33:28AM	Analysis Bath Temp.: 77.150 K
Report Time: 6/12/2010 3:35:31PM	Thermal Correction: No
Sample Mass: 0.1949 g	Warm Free Space: -0.5345 cm ³ Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm ³	Automatic Degas: No

Options Report

Analysis Conditions

Preparation

Fast evacuation: No
Evacuation rate: 5.0 mmHg/s
Unrestricted evacuation from: 5.0 mmHg
Evacuation time: 10.00 h
Leak test: No

Free Space

Free-space type: Measured
Lower dewar for evacuation: Yes
Evacuation time: 0.10 h
Outgas test: No

p° and Temperature

p° and T type: Enter p° below. Enter the Analysis Bath Temperature below.
p°: 781.840 mmHg
Temperature: 77.150 K

Dosing

Use first pressure fixed dose: No
Use maximum volume increment: No
Target tolerance: 5.0% or 5.000 mmHg
Low pressure dosing: No

Equilibration

Equilibration time (p/p° = 1.000000000): 10 s
Minimum equilibration delay at p/p° >= 0.995: 600 s

Sample Backfill

Backfill at start of analysis: Yes
Backfill at end of analysis: Yes
Backfill gas: N2

Adsorptive Properties

Adsorptive: Nitrogen
Maximum manifold pressure: 1050.00 mmHg
Non-ideality factor: 0.0000658
Density conversion factor: 0.0015468
Molecular cross-sectional area: 0.162 nm²
Inside diameter of sample tube: 9.53 mm



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 U

Unit 0

Serial #: 909

Page 6

Sample ID: 109679
Setup ID: None
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Langmuir Surface Area Report

Langmuir Surface Area: 31.0332 ± 0.7722 m²/g
Slope: 0.140276 ± 0.003491 g/cm³ STP
Y-Intercept: 3.863466 ± 0.367289 mmHg·g/cm³ STP
b: 0.036308 1/mmHg
Qm: 7.1288 cm³/g STP
Correlation Coefficient: 0.997840
Molecular Cross-Sectional Area: 0.1620 nm²

Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	p/Q (mmHg·g/cm ³ STP)
39.275002	4.4710	8.784
54.029999	4.7729	11.320
68.754997	5.0211	13.693
83.425003	5.2383	15.926
98.139999	5.4472	18.017
112.805000	5.6335	20.024
127.565002	5.8287	21.886
142.235001	6.0124	23.657
156.979996	6.1908	25.357

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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: 22.5765 ± 0.0617 m²/g
 Slope: 0.190422 ± 0.000522 g/cm³ STP
 Y-Intercept: 0.002397 ± 0.000070 g/cm³ STP
 C: 80.429415
 Qm: 5.1862 cm³/g STP
 Correlation Coefficient: 0.9999737
 Molecular Cross-Sectional Area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p ^o /p - 1)]
0.050234063	4.4710	0.011830
0.069106207	4.7729	0.015554
0.087939981	5.0211	0.019203
0.106703418	5.2383	0.022803
0.125524399	5.4472	0.026352
0.144281434	5.6335	0.029930
0.163159979	5.8287	0.033450
0.181923406	6.0124	0.036987
0.200782756	6.1908	0.040580



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Unit 0

Serial #: 909

Page 2

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Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm ³	Automatic Degas: No

Isotherm Tabular Report

Relative Pressure (p/p ⁰)	Absolute Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	Elapsed Time (h:min)	Saturation Pressure (mmHg)
				781.840027
0.050234063	39.275002	4.4710	00:47	
0.069106207	54.029999	4.7729	00:52	
0.087939981	68.754997	5.0211	00:57	
0.106703418	83.425003	5.2383	01:01	
0.125524399	98.139999	5.4472	01:05	
0.144281434	112.805000	5.6335	01:10	
0.163159979	127.565002	5.8287	01:14	
0.181923406	142.235001	6.0124	01:18	
0.200782756	156.979996	6.1908	01:23	



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Test Report

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

FILE No.:256/10

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 40698

TEST PROCEDURE:

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 109679
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica Fume -
Monthly Oct'10.

Field No.: 1

TEST RESULTS

Sodium as Na₂O (%) 0.24
Potassium as K₂O (%) 0.19
Available Alkali (%) 0.4

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

Samples submitted by the Client.

D.Rowley, File



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COMPETENCE

Approved Signatory Nanthini.S Nanthini.Selvadurai
Date 03-12-10 Serial No. 91837

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Test Report

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

FILE No.: 256/10

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 40698

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

Laboratory Sample No.: 109679
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica
Fume - Monthly
Oct'10.

Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 92.0

Sample submitted by the client.

Nall. S
Nanthini. Selvadurai
Analytical Chemist
3rd December 2010
D.Rowley, File.



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9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.: 256/10

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 40698

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

Laboratory Sample No.: 109679
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica Fume -
Monthly Oct'10

Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.238
Sulphate as SO₃ (%) 0.5

Samples submitted by the Client.

D.Rowley, File.



ACCREDITED FOR
TECHNICAL
COMPETENCE

Approved Signatory

Nanthini. Selvadurai

Nanthini. Selvadurai

Date 03-12-10

Serial No. 91838

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