



MATERIALS TECHNICAL SERVICES
BORAL RESOURCES (NSW) PTY LTD
ABN 51 000 756 607
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

SOURCE OF SAMPLE: Unknown

LAB SAMPLE NO: 109662

REQUEST NO.: 40689

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for September 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: | 111 % @ 7 Days |
| | Control Mix Strength: | 40.0 MPa |
| | Test Mix Strength: | 44.2 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 105%.

Daniel Rowley, Mat. File, File

Muans Abdulnebe



Approved Signatory _____

Date 17-11-10 Serial No. 91836

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TEST REPORT

CLIENT: XYPEX AUSTRALIA

Address: 9/177 Arthur Street Homebush West NSW 2140

FILE NO: 256/10

REQUEST NO.: 40689

LAB. SAMPLE NO: 109662

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for September 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 | 1.2 % | AS3583.2 | Max. 3.0% |
| Loss on ignition | 01-11-10 | 3.1 % | AS3583.3 | Max. 6.0% |
| Relative Density | 01-11-10 | 2.24 | AS3583.5 | |

- Sample submitted by the client and tested as received

Daniel Rowley, Mat. File, File

Safwan Fawal



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Date 17/11/2010 Serial No. 91835

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Number: 547



TEST REPORT

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

FILE NO: 256/10

REQUEST NO.: 40689

LAB. SAMPLE NO: 109662

SOURCE OF SAMPLE: Unknown

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

Bulk Density - AS3582.3.6.5

Result: 555 Kg/m³

Fineness by 45 µm sieve (Retained) - ASTM C430

Result: 42 %

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

Tatiana Lysova
16-11-2010

Daniel Rowley, Mat. File, File

Sample ID: 109662
Setup ID: None
Converted from:: L:/GEMINI/DATA/L192/3917/109662.MGD
File: L:\...3917\109662.DMT

| | |
|---|---|
| Started: 6/12/2010 8:38:12AM | Analysis Adsorptive: N2 |
| Completed: 6/12/2010 10:03:22AM | Analysis Bath Temp.: 77.150 K |
| Report Time: 6/12/2010 3:35:29PM | Thermal Correction: No |
| Sample Mass: 0.2410 g | Warm Free Space: -0.6684 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

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Langmuir Surface Area Report

Langmuir Surface Area: 30.9675 ± 0.6550 m²/g
 Slope: 0.140573 ± 0.002973 g/cm³ STP
 Y-Intercept: 3.488976 ± 0.312918 mmHg·g/cm³ STP
 b: 0.040291 1/mmHg
 Qm: 7.1137 cm³/g STP
 Correlation Coefficient: 0.998438
 Molecular Cross-Sectional Area: 0.1620 nm²

| Pressure (mmHg) | Quantity Adsorbed (cm ³ /g STP) | p/Q (mmHg·g/cm ³ STP) |
|--------------------|--|--|
| 39.235001 | 4.6211 | 8.490 |
| 54.000000 | 4.9150 | 10.987 |
| 68.764999 | 5.1610 | 13.324 |
| 83.449997 | 5.3749 | 15.526 |
| 98.165001 | 5.5684 | 17.629 |
| 112.800003 | 5.7527 | 19.608 |
| 127.565002 | 5.9284 | 21.518 |
| 142.294998 | 6.0880 | 23.373 |
| 157.035004 | 6.2524 | 25.116 |

Sample ID: 109662
 Setup ID: None
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 File: L:\...3917\109662.DMT

| | |
|---|---|
| Started: 6/12/2010 8:38:12AM | Analysis Adsorptive: N2 |
| Completed: 6/12/2010 10:03:22AM | Analysis Bath Temp.: 77.150 K |
| Report Time: 6/12/2010 3:35:29PM | Thermal Correction: No |
| Sample Mass: 0.2410 g | Warm Free Space: -0.6684 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: 22.6517 ± 0.0401 m²/g
 Slope: 0.190268 ± 0.000337 g/cm³ STP
 Y-Intercept: 0.001912 ± 0.000045 g/cm³ STP
 C: 100.511522
 Qm: 5.2035 cm³/g STP
 Correlation Coefficient: 0.9999890
 Molecular Cross-Sectional Area: 0.1620 nm²

| Relative Pressure (p/p ⁰) | Quantity Adsorbed (cm ³ /g STP) | 1/[Q(p ⁰ p - 1)] |
|---------------------------------------|--|-----------------------------|
| 0.050182901 | 4.6211 | 0.011433 |
| 0.069067838 | 4.9150 | 0.015095 |
| 0.087952774 | 5.1610 | 0.018685 |
| 0.106735386 | 5.3749 | 0.022231 |
| 0.125556377 | 5.5684 | 0.025785 |
| 0.144275042 | 5.7527 | 0.029308 |
| 0.163159979 | 5.9284 | 0.032888 |
| 0.182000145 | 6.0880 | 0.036546 |
| 0.200853114 | 6.2524 | 0.040198 |

Sample ID: 109662
 Setup ID: None
 Converted from:: L:/GEMINI/DATA/L192/3917/109662.MGD
 File: L:\...3917\109662.DMT

| | |
|---|---|
| Started: 6/12/2010 8:38:12AM | Analysis Adsorptive: N2 |
| Completed: 6/12/2010 10:03:22AM | Analysis Bath Temp.: 77.150 K |
| Report Time: 6/12/2010 3:35:28PM | Thermal Correction: No |
| Sample Mass: 0.2410 g | Warm Free Space: -0.6684 cm ³ Measured |
| 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 ^o) | Absolute Pressure (mmHg) | Quantity Adsorbed (cm ³ /g STP) | Elapsed Time (h:min) | Saturation Pressure (mmHg) |
|---------------------------------------|--------------------------|--|----------------------|----------------------------|
| | | | | 781.840027 |
| 0.050182901 | 39.235001 | 4.6211 | 00:48 | |
| 0.069067838 | 54.000000 | 4.9150 | 00:53 | |
| 0.087952774 | 68.764999 | 5.1610 | 00:58 | |
| 0.106735386 | 83.449997 | 5.3749 | 01:03 | |
| 0.125556377 | 98.165001 | 5.5684 | 01:07 | |
| 0.144275042 | 112.800003 | 5.7527 | 01:11 | |
| 0.163159979 | 127.565002 | 5.9284 | 01:15 | |
| 0.182000145 | 142.294998 | 6.0880 | 01:20 | |
| 0.200853114 | 157.035004 | 6.2524 | 01:24 | |



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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.: 40689

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

Laboratory Sample No.: 109662
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica
Fume - Monthly
Sept'10.

Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 89.7

Sample submitted by the client.

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



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Test Report

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FILE No.:256/10

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 40689

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

Laboratory Sample No.: 109662
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica Fume -
Monthly Sept'10

Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.219
Sulphate as SO₃ (%) 0.5

Samples submitted by the Client.

D.Rowley,File.



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Approved Signatory Nanthini. Selvadurai
Date 03-12-10 Serial No. 91833

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Test Report

CLIENT: XYPEX AUSTRALIA
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FILE No.:256/10

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 40689

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

Laboratory Sample No.: 109662
Date Sampled: Unknown
Date Received: 29/10/10
Sample Description: Ecotec Silica Fume -
Monthly Sept'10.

Field No.: 1

TEST RESULTS

Sodium as Na₂O (%) 0.24
Potassium as K₂O (%) 0.22
Available Alkali (%) 0.4

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

Samples submitted by the Client.

D.Rowley,File



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Approved Signatory Nanthini.Selvadurai
Date 03-12-10 Serial No. 91034

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