



**Boral Construction Materials
Materials Technical Services**

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

T: +61 (02) 9624 9900

F: +61 (02) 9624 9999

www.boral.com.au

TEST REPORT

CLIENT: XYPEX AUSTRALIA
190, Toongabbie Road Girraween NSW 2145.

FILE No.: 256/17

PROJECT: Testing of Silica fume sample for month of January' 2017.

REQUEST No.: 70989

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

Laboratory Sample No.: 186516
Date Sampled: January '2017.
Date Received: 10/01/17
Sample Description: Ecotec Silica
Fume January'
2017.
Field No.: 1

TEST RESULTS

Silicon as SiO₂(%) 98.0

Sample submitted by the Client.

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

Nanthini S
Analytical Chemist
22nd February 2017.
M.Hanlon, Mat. File, File.



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/17

ADDRESS: 190 Toongabbie road, Girraween, NSW 2145

REQUEST NO: 70989

LAB SAMPLE NO: 186516

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Jan 2017.

IDENTIFICATION OF CEMENT USED: Boral Cement SL Berrima – Ref. 2016

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

Accelerated Pozzolan Strength Activity Index With Portland Cement - ASTM C1240

Date Cast: 24-01-17

Date Crushed: 31-01-17 @ 7 Days

Results:	Accelerated Pozzolan Strength Activity Index:	111 % @ 7 Days
	Control Mix Strength:	31.3 MPa
	Test Mix Strength:	34.8 MPa

Note:

Test mix used 242 mls of water and 1.8 grams of Dry Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 100%.

Mark Hanlon, Mat. File, File



Approved Signatory _____

Date 24.02.17 Serial No. 154223

Accredited for compliance with ISO/IEC 17025

Muans Abdulnebe

NATA Accredited Laboratory

Number: 547



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

Address: 190 Toongabbie Road Girraween, NSW 2145

FILE NO: 256/17

REQUEST NO: 70989

LAB. SAMPLE NO: 186516

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Jan 2017.

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	25-01-17	1.1%	AS3583.2	Max. 3.0%
Loss on ignition	25-01-17	2.4%	AS3583.3	Max. 6.0%
Relative Density	25-01-17	2.21	AS3583.5	

Sample submitted by the client.

Mark Hanlon, Mat. File, File

Muans Abdulnebe



Approved Signatory _____

Date 20-02-17 Serial No. 154224

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 547



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TEST REPORT

CLIENT: XYPEX AUSTRALIA
190 Toongabbie Road Girraween NSW 2145.

FILE No.:256/17

PROJECT: Testing of Silica Fume sample for month of January' 2017.

REQUEST No.: 70989

TEST PROCEDURE: AS 3583.13 – Determination of Chloride Ion content
AS 3583.8 – Determination of Sulfuric Anhydride content

Laboratory Sample No.: 186516
Date Sampled: January' 2017
Date Received: 10/01/2017
Sample Description: Ecotec Silica Fume
Testing monthly sample
for January' 2017.
Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.152
Sulphate as SO₃ (%) 0.9

Samples submitted by the Client.

M.Hanlon, M.File, File.

Nanthini Selvadurai



Approved Signatory

Date 22-02-17

Serial No.

154226

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968



**Boral Construction Materials
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Test Report

CLIENT: XYPEX AUSTRALIA
190 Toongabbie Road, Girraween, NSW 2145.

FILE No.:256/17

PROJECT: Testing of Silica Fume Sample for month of January' 2017.

REQUEST No.:70989

TEST PROCEDURE:

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 186516
Date Sampled: January' 2017.
Date Received: 10/01/2017.
Sample Description: Ecotec Silica Fume
Testing – Monthly Sample
for January' 2017.
Field No.: 1

TEST RESULTS

Sodium as Na ₂ O (%)	0.33
Potassium as K ₂ O (%)	0.17
Available Alkali (%)	0.4

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

Samples submitted by the Client.

M.Hanlon,Mat. File,File.



Approved Signatory

Nanthini.Selvadurai

Date 22-02-17 Serial No. 154225

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/17

ADDRESS: 190 Toongabbie Road, Girraween, NSW 2145

REQUEST NO: 70989

LAB. SAMPLE NO: 186516

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Jan 2017

Bulk Density - AS3582.3.6.5

Result: 632 Kg/m³

Mark Hanlon, Mat. File, File


Sharjeel Mahmood
31-01-2017

Sample: Silica Fume- LSN -186516
Operator: Kayla Wells
Submitter: Boral
File: L:\Tristar\02-17\000-347.SMP

Started: 23/02/2017 2:49:28 PM	Analysis adsorptive: N2
Completed: 23/02/2017 4:31:58 PM	Analysis bath temp.: 77.300 K
Report time: 24/02/2017 9:22:42 AM	Thermal correction: No
Sample mass: 0.6479 g	Warm free space: 17.4762 cm ³ Measured
Cold free space: 50.7871 cm ³	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 $p/p^\circ = 0.300846966$: 20.1779 m²/g

BET Surface Area: 20.6855 m²/g

Langmuir Surface Area: 30.2930 m²/g



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

MicroActive 4.00

3000
Serial# 1586 Unit 1 Port 1

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Sample: Silica Fume- LSN -186516
Operator: Kayla Wells
Submitter: Boral
File: L:\Tristar\02-17\000-347.SMP

Started: 23/02/2017 2:49:28 PM	Analysis adsorptive: N2
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Report time: 24/02/2017 9:22:42 AM	Thermal correction: No
Sample mass: 0.6479 g	Warm free space: 17.4762 cm ³ Measured
Cold free space: 50.7871 cm ³	Equilibration interval: 10 s
Low pressure dose: None	Sample density: 1.000 g/cm ³
Automatic degas: No	

BET Report

BET surface area: 20.6855 ± 0.3178 m²/g
Slope: 0.210078 ± 0.003188 g/cm³ STP
Y-intercept: 0.000339 ± 0.000540 g/cm³ STP
C: 620.108683
Qm: 4.7525 cm³/g STP
Correlation coefficient: 0.9993100
Molecular cross-sectional area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p ^o /p - 1)]
0.026501735	4.2299	0.006436
0.032900185	4.3924	0.007745
0.053680149	4.7767	0.011875
0.097098799	5.2860	0.020344
0.149725385	5.7141	0.030817
0.200124947	6.0452	0.041387
0.250558766	6.3437	0.052702
0.300846966	6.6306	0.064896

Sample: Silica Fume- LSN -186516
Operator: Kayla Wells
Submitter: Boral
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Sample mass: 0.6479 g	Warm free space: 17.4762 cm ³ Measured
Cold free space: 50.7871 cm ³	Equilibration interval: 10 s
Low pressure dose: None	Sample density: 1.000 g/cm ³
Automatic degas: No	

Langmuir Report

Langmuir surface area: 30.2930 ± 0.7954 m²/g
Slope: 0.143683 ± 0.003772 g/cm³ STP
Y-intercept: 2.695 ± 0.495 mmHg·g/cm³ STP
b: 0.053324 1/mmHg
Qm: 6.9598 cm³/g STP
Correlation coefficient: 0.997938
Molecular cross-sectional area: 0.1620 nm²

Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	p/Q (mmHg·g/cm ³ STP)
20.516436	4.2299	4.850
25.469824	4.3924	5.799
41.556725	4.7767	8.700
75.169464	5.2860	14.220
115.910568	5.7141	20.285
154.927612	6.0452	25.628
193.971176	6.3437	30.577
232.902008	6.6306	35.125