



**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 March' 2017.

REQUEST No.: 71805

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

Laboratory Sample No.: 188806
Date Sampled: March '2017.
Date Received: 02/03/17
Sample Description: Ecotec Silica
Fume March'
2017.
Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 98.6

Sample submitted by the Client.

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

Nanthini S
Analytical Chemist
21st April 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: 71805

LAB SAMPLE NO: 188806

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for March 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 Pozzolanic Strength Activity Index With Portland Cement - ASTM C1240

Date Cast: 07-03-2017

Date Crushed: 14-03-2017 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	109 % @ 7 Days
	Control Mix Strength:	33.0 MPa
	Test Mix Strength:	35.9 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 101 %.

Mark Hanlon, Mat. File, File



Approved Signatory

Muans Abdulnebe

Date 26-04-17 Serial No.

156457

NATA Accredited Laboratory

Accredited for compliance with ISO/IEC 17025

Number: 547



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TEST REPORT

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

FILE NO: 256/17

REQUEST NO: 71805

LAB. SAMPLE NO: 188806

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for March 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	04/04/2017	0.7 %	AS3583.2	Max. 3.0%
Loss on ignition	04/04/2017	2.6 %	AS3583.3	Max. 6.0%
Relative Density	07/03/2017	2.23	AS3583.5	

Sample submitted by the client.

Mark Hanlon, Mat. File, File



Approved Signatory

Muans Abdulnebe

Date 26-04-17 Serial No. 156459

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 March 2017.

REQUEST No.: 71805

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

Laboratory Sample No.: 188806
Date Sampled: March' 2017
Date Received: 02/03/2017
Sample Description: Ecotec Silica Fume
Testing monthly sample
for March 2017.
Field No.: 1

TEST RESULTS

Chloride as Cl⁻ (%) 0.151
Sulphate as SO₃ (%) 1.7

Samples submitted by the Client.

M.Hanlon, M.File, File.

Nanthini Selvadurai



Approved Signatory

Date 26-04-17

Serial No.

156460

NATA Accredited Laboratory

Number: 9968



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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 March' 2017.

REQUEST No.:71805

TEST PROCEDURE:

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 188806
Date Sampled: March' 2017.
Date Received: 02/03/2017.
Sample Description: Ecotec Silica Fume
Testing – Monthly Sample
for March 2017.
Field No.: 1

TEST RESULTS

Sodium as Na ₂ O (%)	0.16
Potassium as K ₂ O (%)	0.09
Available Alkali (%)	0.2

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

Samples submitted by the Client.

M.Hanlon,Mat. File,File.

Nanthini.Selvadurai



Approved Signatory Nanthini.Selvadurai

Date 26-04-17 Serial No. 156461

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968



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TEST REPORT

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

FILE NO: 256/17

LAB SAMPLE NO: 188806

REQUEST No: 71805

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

IDENTIFICATION OF CEMENT USED: Boral Cement SL Berrima Ref. No. 203-608-001-Aug 2016

TEST METHOD: AS3583: Methods of test for supplementary cementitious materials for use with Portland cement

PROPERTY	DATE TESTED	RESULT	TEST METHOD
Relative density	07/03/2017	2.23	AS3583.5
Relative water requirement	09/03/2017	111 %	AS3583.6
Relative strength 7days (accelerated)	16/03/2017	110 %	AS3583.6
Relative strength 28days (standard)	06/04/2017	97 %	AS3583.6

Mark Hanlon, Mat. File, File



Approved Signatory

Muans Abdulnebe

Date 26-04-17 Serial No. 156458

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NATA Accredited Laboratory

Number: 547



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/17

ADDRESS: 190 Toongabbie Road, Girraween, NSW 2145

REQUEST NO: 71805

LAB. SAMPLE NO: 188806

SOURCE OF SAMPLE: Unknown

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

Bulk Density - AS3582.3 – Clause 7.1.7

Result: 644 Kg/m³

Mark Hanlon, Mat. File, File


Sharjeel Mahmood
06/04/2017

Sample: Ecotec-Monthly-March17 -LSN 188806
Operator: Kayla Wells
Submitter: Boral
File: L:\Tristar\04-17\000-354.SMP

Started: 27/04/2017 8:00:04 AM	Analysis adsorptive: N2
Completed: 27/04/2017 10:24:43 AM	Analysis bath temp.: 77.300 K
Report time: 27/04/2017 11:36:30 AM	Thermal correction: No
Sample mass: 1.3824 g	Warm free space: 11.9772 cm ³ Measured
Cold free space: 31.0022 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 $p/p^\circ = 0.302711819$: 20.9401 m²/g

BET Surface Area: 21.4678 m²/g

Langmuir Surface Area: 31.5995 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 3

Page 6 of 9

Sample: Ecotec-Monthly-March17 -LSN 188806
Operator: Kayla Wells
Submitter: Boral
File: L:\Tristar\04-17\000-354.SMP

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Low pressure dose: None	Sample density: 1.000 g/cm ³
Automatic degas: No	

BET Report

BET surface area: 21.4678 ± 0.2159 m²/g
Slope: 0.201814 ± 0.002010 g/cm³ STP
Y-intercept: 0.000934 ± 0.000343 g/cm³ STP
C: 216.985983
Qm: 4.9322 cm³/g STP
Correlation coefficient: 0.9997025
Molecular cross-sectional area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (cm ³ /g STP)	1/[Q(p ^o /p - 1)]
0.024881357	4.1143	0.006202
0.030193586	4.2598	0.007309
0.053872656	4.7219	0.012059
0.108717380	5.3849	0.022652
0.149390465	5.7520	0.030533
0.200133771	6.1527	0.040667
0.251286368	6.5291	0.051404
0.302711819	6.8995	0.062921



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3000
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Sample: Ecotec-Monthly-March17 -LSN 188806
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Cold free space: 31.0022 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: 31.5995 ± 1.1062 m²/g
Slope: 0.137742 ± 0.004822 g/cm³ STP
Y-intercept: 3.012 ± 0.637 mmHg·g/cm³ STP
b: 0.045730 1/mmHg
Qm: 7.2599 cm³/g STP
Correlation coefficient: 0.996344
Molecular cross-sectional area: 0.1620 nm²

Pressure (mmHg)	Quantity Adsorbed (cm ³ /g STP)	p/Q (mmHg·g/cm ³ STP)
19.240807	4.1143	4.677
23.348764	4.2598	5.481
41.659840	4.7219	8.823
84.071381	5.3849	15.612
115.523964	5.7520	20.084
154.763870	6.1527	25.154
194.320282	6.5291	29.762
234.087692	6.8995	33.928