



**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
Address: 190 Toongabbie Road Girraween, NSW 2145

FILE NO: 256/18

LAB SAMPLE NO: 201328

REQUEST No: 77092

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Mid February 2018

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	07/03/2018	2.23	AS 3583.5
Relative water requirement	08/03/2018	112 %	AS 3583.6
Relative strength 7days (accelerated)	15/03/2018	110 %	AS 3583.6
Relative strength 28days (standard)	05/04/2018	99 %	AS 3583.6

Shaun Guthridge, Mat. File, File



Approved Signatory *Sharjeel* **Sharjeel Mahmood**
Date 06-04-2018 Serial No. 166837

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 547



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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/18

ADDRESS: 190 Toongabbie Road, Girraween, NSW 2145

REQUEST NO: 77092

LAB SAMPLE NO: 201328

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Mid February 2018

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: 22-03-2018

Date Crushed: 29-03-2018 @ 7 Days

Results:	Accelerated Pozzolanic Strength Activity Index:	109 % @ 7 Days
	Control Mix Strength:	26.7 MPa
	Test Mix Strength:	29.0 MPa

Note:

Test mix used 242 mls of water and 1.6 grams of Dry Water Reducer (1000 NT from BASF) to obtain a flow of 109 %.

Shaun Guthridge, Mat. File, File



Approved Signatory

Sharjeel Mahmood

Date 06-04-2018

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TEST REPORT

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Address: 190 Toongabbie Road Girraween, NSW 2145

FILE NO: 256/18

REQUEST NO: 77092

LAB. SAMPLE NO: 201328

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Mid February 2018

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	26/03/2018	0.7%	AS 3583.2	Max. 3.0%
Loss on ignition	26/03/2018	1.9%	AS 3583.3	Max. 6.0%
Relative Density	07/03/2018	2.23	AS 3583.5	

Sample submitted by the client.

Shaun Guthridge, Mat. File, File



Approved Signatory

Sharjeel Mahmood

Date 06-04-2018 Serial No.

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TEST REPORT

CLIENT: XYPEX AUSTRALIA

FILE NO: 256/18

ADDRESS: 190 Toongabbie Road, Girraween, NSW 2145

REQUEST NO: 77092

LAB. SAMPLE NO: 201328

SOURCE OF SAMPLE: Unknown

SAMPLE IDENTIFICATION: Ecotec Silica Fume – Monthly Sample for Mid February 2018

Bulk Density - AS3582.3 – Clause 7.1.7

Result: 638 Kg/m³

Shaun Guthridge, Mat. File, File


Julius Alvaro
06/04/2018



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TEST REPORT

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

FILE No.:256/18

PROJECT: Testing of Silica Fume sample for Mid. of February .2018.

REQUEST No.: 77092

TEST PROCEDURE:

AS 3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 201328
Date Sampled: Mid. of February' 2018
Date Received: 16/02/18
Sample Description: Ecotec Silca Fume –
Monthly Sample for Mid.
February 2018.
Field No.: 1

TEST RESULTS:

Sodium as Na₂O (%) 0.08
Potassium as K₂O (%) 0.06
Available Alkali (%) 0.1

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

Samples submitted by the Client.

S.Guthridge, Mat. File, File.



Approved Signatory

Nanthini Selvadurai

Date 13-04-18

Serial No.

166840

NATA Accredited Laboratory



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TEST REPORT

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

FILE No.:256/18

PROJECT: Testing of Silica Fume sample for Mid of February' 2018

REQUEST No.: 77092

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

Laboratory Sample No.: 201328
Date Sampled: Mid. February '2018
Date Received: 16/02/18
Sample Description: Ecotec Silca Fume
monthly sample for Mid.
February' 2018.
Field No.: 1

TEST RESULTS:

Chloride as Cl⁻ (%) 0.008
Sulphate as SO₃ (%) 1.1

Samples submitted by the Client.

S.Guthridge, Mat. File, File.



Approved Signatory

N.S.

Nanthini Selvadurai

Date 13-04-18

Serial No.

166841

NATA Accredited Laboratory



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TEST REPORT

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

FILE No.: 256/18

PROJECT: Testing of Silica fume sample for Mid of February 2018.

REQUEST No.: 77092

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

Laboratory Sample No.: 201328
Date Sampled: Mid. February 2018.
Date Received: 16/02/18
Sample Description: Ecotec Silica Fume
Mid. of February
2018.
Field No.: 1

TEST RESULTS

Silicon as SiO₂ (%) 97.2

Sample submitted by the Client.

Nanthini S
Analytical Chemist
13th April 2018.
S.Guthridge, Mat. File, File.

Sample: LSN 201328
Operator: Paul Sheean
Submitter: Boral
File: L:\Customers\L192 - boral quarries & co...\000-014.SMP

Started: 9/03/2018 1:53:32 PM	Analysis adsorptive: N2
Completed: 9/03/2018 4:23:35 PM	Analysis bath temp.: 77.300 K
Report time: 9/03/2018 3:41:10 PM	Thermal correction: No
Sample mass: 1.0531 g	Warm free space: 17.3653 cm ³ Measured
Cold free space: 48.8634 cm ³	Equilibration interval: 15 s
Low pressure dose: None	Sample density: 1.000 g/cm ³
Automatic degas: No	

Summary Report

Surface Area

Single point surface area at $p/p^\circ = 0.300502654$: 16.8786 m²/g

BET Surface Area: 17.8861 m²/g

Sample: LSN 201328
Operator: Paul Sheean
Submitter: Boral
File: L:\Customers\L192 - boral quarries & co...\000-014.SMP

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Warm free space: 17.3653 cm³ Measured
Equilibration interval: 15 s
Sample density: 1.000 g/cm³

Isotherm Tabular Report

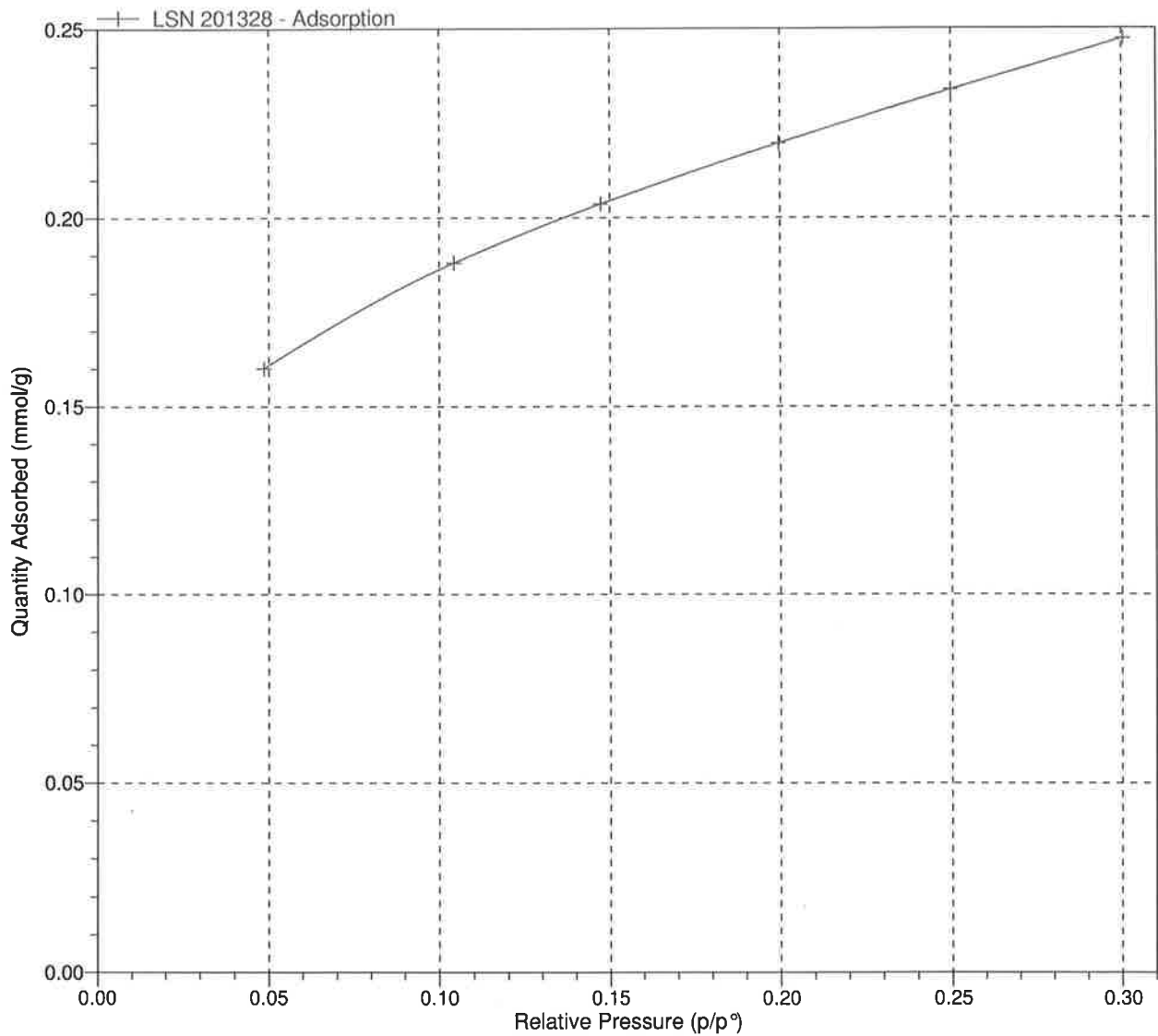
Relative Pressure (p/p ^o)	Absolute Pressure (kPa)	Quantity Adsorbed (mmol/g)	Elapsed Time (h:min)	Saturation Pressure (kPa)
0.048562141	5.0231008	0.16001	01:42	103.4365615
0.104249786	10.7832394	0.18805	02:03	
0.147376499	15.2441183	0.20361	02:10	
0.199573577	20.6432046	0.21967	02:15	
0.249961688	25.8551775	0.23377	02:20	
0.300502654	31.0829612	0.24733	02:24	
			02:28	

Sample: LSN 201328
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Isotherm Linear Plot

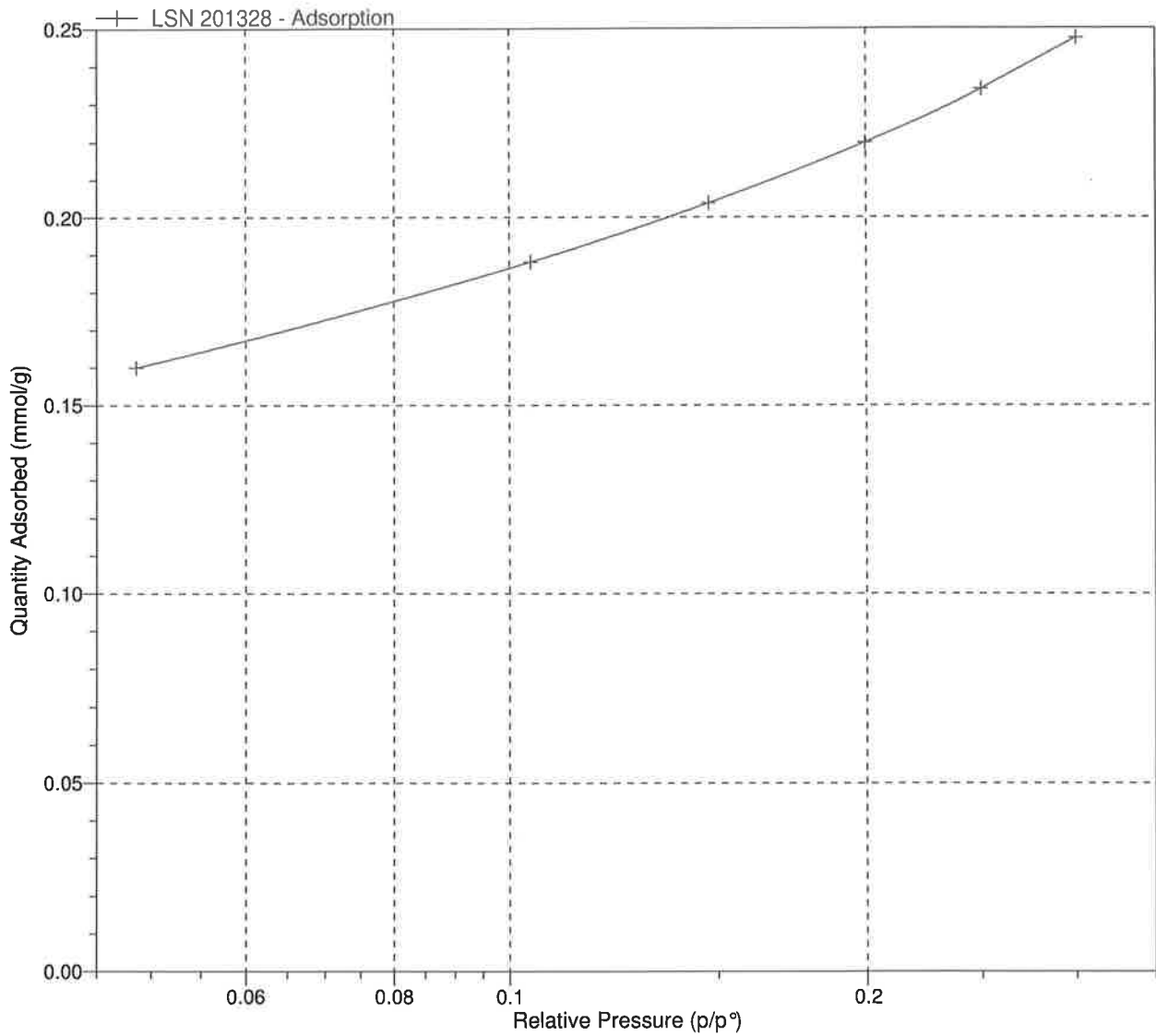


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Equilibration interval: 15 s
Sample density: 1.000 g/cm³

Isotherm Log Plot

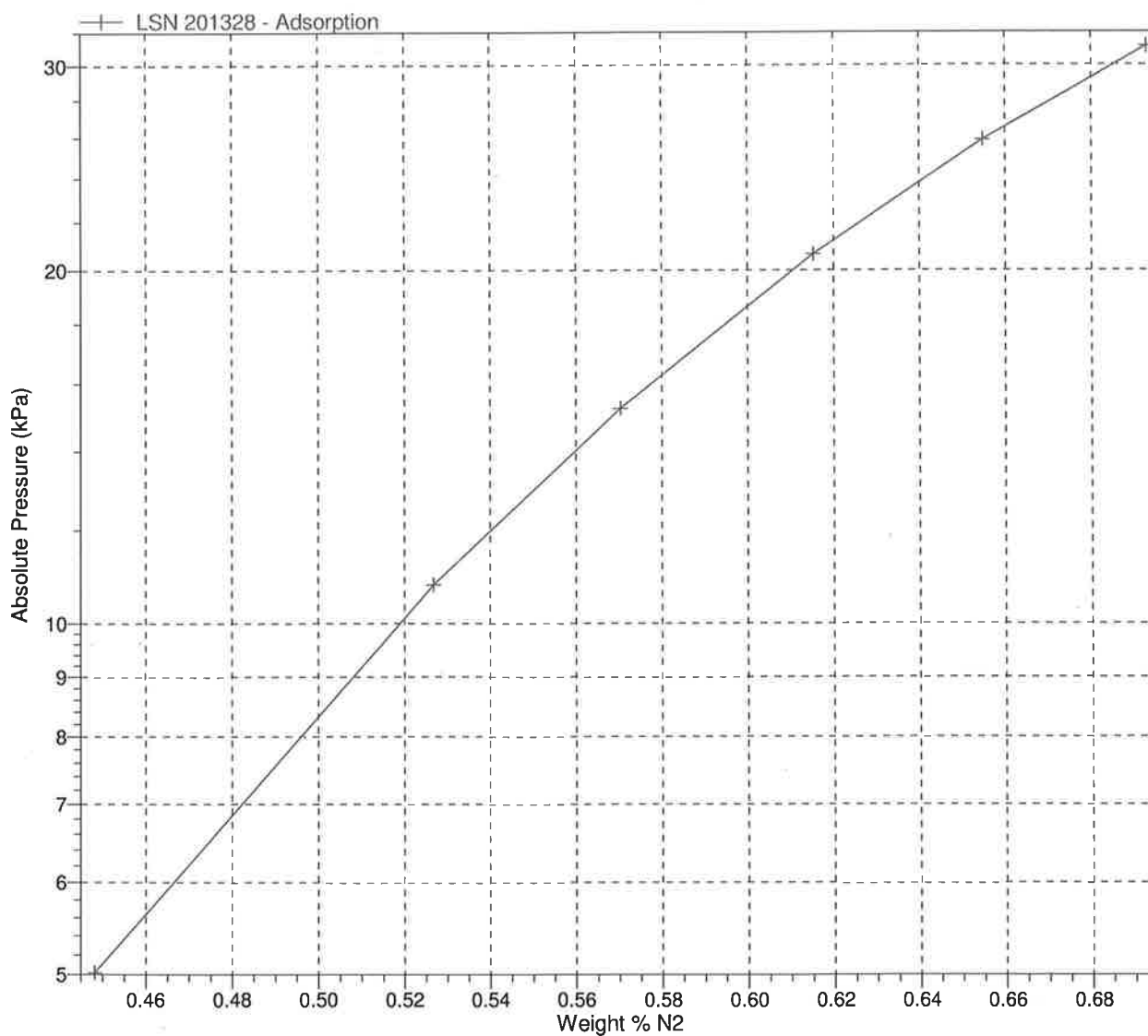


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Sample density: 1.000 g/cm³

Isotherm Pressure Composition



Sample: LSN 201328
 Operator: Paul Sheean
 Submitter: Boral
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 Low pressure dose: None
 Automatic degas: No

Analysis adsorptive: N2
 Analysis bath temp.: 77.300 K
 Thermal correction: No
 Warm free space: 17.3653 cm³ Measured
 Equilibration interval: 15 s
 Sample density: 1.000 g/cm³

BET Report

BET surface area: 17.8861 ± 0.0685 m²/g
 Slope: 5.398499 ± 0.020703 g/mmol
 Y-intercept: 0.055979 ± 0.002831 g/mmol
 C: 97.438765
 Qm: 0.18334 mmol/g
 Correlation coefficient: 0.9999853
 Molecular cross-sectional area: 0.1620 nm²

Relative Pressure (p/p ^o)	Quantity Adsorbed (mmol/g)	1/[Q(p ^o /p - 1)]
0.048562141	0.16001	0.31898
0.104249786	0.18805	0.61890
0.147376499	0.20361	0.84894
0.199573577	0.21967	1.13506

Sample: LSN 201328
 Operator: Paul Sheean
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BET Surface Area Plot

