



**Boral Construction Materials
Materials Technical Services**

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21-January-2025

Dr. Sam Soheil Jahandari, Dr Saeed Karimian, Professor Adam Ahmad Dalvand

Chem Concrete Pty Ltd and Perchinz Developments Limited

**Re: Report for ChemConcrete-WP^{WP} Waterproofing Admixture Compliance
Certificate for Type SN AS 1478.1-2000 Chemical admixtures for concrete,
mortar and grout, Part 1: Admixtures for concrete**

Dear Dr. Sam Soheil Jahandari, Dr Saeed Karimian, Professor Adam Ahmad Dalvand

Boral is proud to operate the largest construction materials research and testing facility of its kind in the southern hemisphere at Baulkham Hills, Sydney. This facility plays a key role in maintaining the high standards Boral customers have come to expect and its accredited by NATA (ISO/IEC 17025) and certified by NCSI (ISO 9001) to conduct an extensive range of compliance testing on cement, aggregates, soil, pavement materials, concrete, and asphalt.

The Boral MTS Lab. conducts construction materials testing and chemical testing under NATA accreditation numbers 547 and 9968, respectively. Our full scope of accreditation can be viewed at the NATA website <https://nata.com.au/>

Four concrete trials were performed in accordance with applicable sections of AS 1478.1 - two trials for the concrete and two trials for ChemConcrete-WP admixture. One 20-litre pail of ChemConcrete Waterproofing Admixture was supplied to Boral by Chem Concrete Pty Ltd. All materials were homogenised and batched on the same day before mixing date. All four trials were performed on the same day in the order of control mix, control mix duplicate, concrete with ChemConcrete-WP and concrete with ChemConcrete-WP duplicate. The dosage of ChemConcrete-WP is at 2% of cement by weight. Each trial was carried out as per AS 1012.2. The fresh properties include slump AS 1012.3.1, air content AS 1012.4.2, fresh density AS 1012.5, bleed AS 1012.6, and setting time AS 1012.18. A total of 12 concrete cylinders were cast and cured as per AS 1012.8.1 and tested for compressive strength as per AS 1012.9 at 1x1d, 2x3d, 3x7d, 3x28d and 3x90d. One set of shrinkage prisms were cast and cured as per AS 1012.8.4 and tested for the drying shrinkage as per AS 1012.13 up to 56d drying.

All results from above tests can be read from NATA reports and summarised on page 3. They were compared with the requirements in Table 2.1 AS 1478.1 (column SN) for the compliance or not. The comparison report is presented on page 2.

In conclusion, we confirm that ChemConcrete-WP Admixture complies with the requirements as per AS1478.1-2000 for Type SN admixture.

Sincerely

Tony Song 21.01.2025

Tony Song

Senior Laboratory Engineer - Concrete

**CONCRETE TEST SUMMARY****ChemConcrete-WP Admixture, Type SN, AS1478.1****AT 2.0% BY WEGHT OF CEMENT****Boral Construction Materials
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CLIENT: Chem Concrete Pty Ltd and Perchinz Developments Limited**PROJECT:** AS1478 Compliance Test for ChemConcrete-WP**Client No:** 911/24**REQUEST No:** 115259**LAB SAMPLE No:** 311691 & 311692 (control), 311693 & 311694 (ChemConcrete-WP)**Standard AS 1478.1-2000:** Chemical admixtures for concrete, mortar and grout,**part 1: admixtures for concrete****Cement:** Bulk Type GP ex Berrima 2402496 BTSL**Date of Test:** 16.10.2024

PARAMETERS	Control	ChemConcrete -WP at 2%	Comparison	AS1478.1 REQUIREMENTS	Pass or Fail
Cement Content	305	305	same	(cement 300 ± 15 kg/ m ³)	Pass
Slump	80	80	same	80 ± 10 mm	Pass
Time of Setting	4:00 5:50	4:20 6:00	+20min +10min	Initial: ± 1 hour Final: ± 1 hour	Pass
Water Content	206	183	-23kg	Test and report	Pass
Bleeding (%)	1.7	0.4	-1.3%	Not exceed that of the control by more than 2%	Pass
Air Content (%)	2.0	2.2	+0.2%	Test and report	Pass

COMPRESSIVE STRENGTH:

Age	Min. of Control	Control (MPa)	ChemConcrete WP at 2% (MPa)	Comparison	Pass/Fail
1	No limit	9.5	12.8	133%	Pass
3	90%	20.6	26.1	127%	Pass
7	90%	29.5	35.4	120%	Pass
28	90%	34.2	40.4	118%	Pass
90	90%	34.3	41.0	119%	Pass

DRYING SHRINKAGE: (Microstrain)

Age	Min. of Control	Control	ChemConcrete- WP at 2%	Difference
7	Test and report no limit established	215	195	- 20
14	Test and report no limit established	335	295	- 40
21	Test and report no limit established	425	370	- 55
28	Test and report no limit established	505	445	- 60
56	Test and report no limit established	615	555	- 60

Note: All samples were prepared, cured and tested at this Laboratory as per AS 1012.2, 3, 4, 5, 6, 8, 9, 13, 18 respectively.**Remarks:** *This admixture (ChemConcrete-WP at 2%) complies with the requirements as per AS1478.1 2000, type SN admixture.*

Dr. Sam Soheil Jahandari, Dr Saeed Karimian, Professor Adam Ahmad Dalvand, File 911, File 8477, Ref 115259SD

Tony Song 21. 01. 2025

Tony Song

Senior Laboratory Engineer - Concrete



Project: AS 1478 Compliance Tests for ChemConcrete-WP
 Attention: Dr. Sam Soheil Jahandari, Dr Saeed Karimian, Professor Adam Ahmad Dalvand
 Client: : Chem Concrete Pty Ltd and Perchinz Developments Limited
 Request: 115259
 Client: 911/24
 Concrete section: 8477

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Re: AS 1478 Compliance Tests for ChemConcrete-WP

MTS Concrete Trials No.		T13575	T13576	T13577	T13578
Cementitious ID		Control	Control duplicate	ChemConcrete-WP Admix	ChemConcrete-WP Admix duplicate
MTS LSN for concrete trials		311691	311692	311693	311694
MIX DATE:		16.10.2024			
Boral Cement SL	kg/m ³	305	305	305	305
ChemConcrete-WP (liquid class SN)	ml/m ³	0	0	6000	6000
20mm Peppertree	kg/m ³	730	730	730	730
10mm Peppertree	kg/m ³	280	280	280	280
Peppertree Man Sand	kg/m ³	460	460	460	460
Dunmore washed fine sand	kg/m ³	390	390	390	390
Water	kg/m ³	206	206	184	182
Slump AS 1012.3.1	mm	85	80	80	80
Fresh concrete density AS 1012.5	kg/m ³	2370	2360	2360	2360
Water / Cement	ratio	0.68	0.68	0.60	0.60
Air content AS 1012.4.2	%	2.0	2.0	2.2	2.2
Bleeding AS 1012.6	%	1.7	1.6	0.3	0.4
Setting time AS 1012.18 (initial)	hr:mm	4:00	4:00	4:20	4:20
Setting time AS 1012.18 (final)	hr:mm	5:50	5:50	5:50	6:10
AS1012.9 Compressive strength (MPa @ days)	1	10.0	9.2	12.5	13.0
	3	21.0	20.5	26.0	27.0
	3	20.5	20.5	25.5	26.0
	7	29.5	30.0	35.0	36.5
	7	29.0	29.5	34.5	35.5
	7	30.0	29.0	35.5	35.5
	28	35.5	33.0	40.0	39.5
	28	35.5	33.5	41.5	40.0
	28	34.0	33.5	40.0	41.5
	90	34.0	35.5	39.5	42.5
	90	33.5	35.5	39.5	42.0
	90	34.0	33.5	40.5	42.0
AS1012.13 Drying shrinkage (micro strains @ days)	7	220	210	200	190
	14	340	330	290	300
	21	430	420	370	370
	28	510	500	440	450
	56	630	600	550	560

TS updated 20.01.2025