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**AS1478. 1-2000: Chemical Admixtures for concrete, mortar and grout
Part 1: Admixtures for concrete**

COMPLIANCE CERTIFICATE NUMBER 007

PRODUCT NAME: EDENCRETE
Classified according to AS1478. 1-2000 as a type SN
Special purpose, normal setting

Tested by Parchem Construction Supplies Pty Ltd – Technical Laboratory Services

Product disclaimer

This Certificate of Conformity is issued by Parchem Construction Suppliers Pty Ltd to certify compliance of a concrete admixture with the testing requirements of AS1478. 1-2000. This Compliance Certificate summarises to the best of our knowledge the performance of the admixture product based on the trials conducted and materials used at the time of testing. You should read this certification carefully and consider the information in the context of how the product will be used, including in conjunction with any other admixture product, condition of raw materials used and the manner in which, the product will be supplied and applied. This certificate is provided without warranty or liability and our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with any reliance on this certificate or the use or application of the product whether or not in accordance with any advice, specification, recommendation or information provided.

* Sold under distributor agreement from Eden Innovations LLC.
Edencrete is registered and trade marks of Eden Innovations LLC

The Test Report results per AS1478. 1-2000 Section 4 – Test Methods, clause 4.4.

a) Admixture -

(i)

Manufactured by:	Eden Innovations LLC
Product Name:	Edencrete
Admixture Type:	SN

(ii)

Recommended dose rate range:	2.5L – 10L per m3
Test dose rate:	5L

(iii)

Sample Size:	176ml
Lot sample size:	5L

b) Cement –

(i)

Manufactured by:	Cement Australia
Supplied:	January 2019
Product Name:	General Purpose Portland Cement Type GP
Type:	GP
Source:	Gladstone

(ii)

Compound compositions tested to AS2350.2

Sulphuric Anhydride Content: SO ₃	2.700
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(iii)

Compound compositions tested to AS2350.2

Mineral Additions:		
	CaO	0.641%
	SiO ₂	19.500%
	Al ₂ O ₃	5.000%
	Fe ₂ O ₃	3.200%
	MgO	0.900%

(iv)

Fineness tested to AS2350.8

Fineness:	380m2/kg
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(v)

Compound compositions tested to AS2350.2

Sodium Oxide (Na ₂ O) content:	0.600%
Potassium Oxide (K ₂ O) content:	0.658%

c) **Aggregates –**

(i)

Coarse Aggregates shall comply with AS2758.1

Geological Description: Coarse Aggregates 10mm and 20mm	Water worn lithic aggregate
Medium Aggregates 2mm – 5mm Manufactured	Crushed Quartz
Fine Aggregate 0.15-1.0mm Sand	Water washed Silica Sand

(ii)

Source & Supplier: Coarse Aggregates 10mm and 20mm	Dalswinton, O'Donohue Filter Sand and Gravel
Medium Aggregates 2mm – 5mm Manufactured	Boral Quarries, Southern NSW
Fine Aggregate 0.15-1.0mm Sand	Sibelco, Victorian and NSW Quarries

(iii) *Particle Size Distribution – percent retained*

SIEVE SIZE mm	20mm	10mm	5mm	2mm	1mm	0.5mm	0.3mm
22.40	5.5	0					
19.00	20	1					
12.70	63.5	49.4					
9.50	10.4	47.1					
6.30	0.6	2.1					
4.75			1				
2.80			52				
2.00			40	18			
1.70			4	42			
1.40				32			
1.18				7	1.7		
1.00				1	9.5		
425µm					87.8	54.1	
300µm					1	36.8	5
212µm						5.6	70
150µm						3	24
75µm		0.4				0.5	1

(iv):-

Moisture condition of Aggregates at time of batching:

Coarse Aggregates 10mm and 20mm	Pre-dried 0.0%
Medium Aggregates 2mm – 5mm Manufactured	Pre-dried 0.0%
Fine Aggregate 0.15-1.0mm Sand	Pre-dried 0.0%

d) Concrete Mix

Mixed according to AS1012.2

Test Date: 4-7-19	EdenCrete
Amount of Admixture Used:	176ml
Sequence of Addition:	Water, Admix, Cement, Fine Agg, Coarse Agg
Actual Cement Content:	10.894kg 13.62% of powder
Water/Cement ratio Admix:	0.486
Water/Cement ratio Control:	0.483
Water content L/m ³	Control 153 EC 150.8
Mass per unit volume kg/m ³	Control 2433 EC 2413
Ratio of Fine Aggregate to Total Aggregate:	0.413:0.587
ADDITION*	
Water Reducer - Fosroc SP213	400ml/100kg cement
Amount of Admixture Used:	43.5ml
*Edencrete is not a concrete admixture, rather a performance enhancing additive, that still requires admixtures in the concrete design. Therefore, testing to AS1478 was completed with a WR in both the control and test certificate mix.	

e) Fresh Concrete – (control concrete and concrete containing admixture)

Test	Specification	Control Sample	EdenCrete
Slump (mm) AS1012.3.1	-	80	80
Air Content (%) AS1012.4	Max +2% of Control	2.3	2.3
Bleed (%) AS1012.6	-	0.69	0.25
Initial Set (hours) AS1012.18	± 1	3.3	3.7
Final Set (hours) AS1012.18	± 1	4.6	5.4
Water Content (% of control)	-	100	99
Water Content (L/m ³)	-	153	150.8
Mass per Unit Volume (kg/m ³) AS1012.5	-	2433	2413
Shrinkage @ 56 Days (microstrain) AS1012.13	-	472	503

f) Hardened Concrete - (control concrete and concrete containing admixture)

Cured According to AS 1012.8

Compressive Strength (N/mm²) – MPa Tested According to AS 1012.9

Age	Control Sample	EdenCrete
3 Day	30.7	31.0
7 Day	37.3	40.3
28 Day	46.9	50.6
90 Day	55.1	54.4

g) Comparison with specification

	Specification	Control Sample	EdenCrete
Water Content (% of Control)	report	100	99
Air Content (%) AS1012.4	Max +2% of Control	2.3	2.3
Initial Set (hours) AS1012.18	± 1	3.3	3.7
Final Set (hours) AS1012.18	± 1	4.6	5.4
Bleed (%) AS1012.6	-	0.69	0.25
Compressive Strength (min) as % of Control			
3 Day	90		101
7 Day	90		108
28 Day	90		108
90 Day	90		99

h) Uniformity Tests

Uniformity Test	Method of Test	Result of Test	Manufacturers recommended Max. Variation
Determination of PH Value <i>PH @ 25°C</i>	APHA 4500-H ⁺	5.75	4.75-6.75
Determination of relative Density <i>Density @ 20°C, g/m³</i>	Sharp & Howells In-House Density	1.02	1.00-1.04
Determination of non-volatile content <i>Non-volatile content, %w/w</i>	Sharp & Howells In-House-Non-Volatiles	4.5	3.0-6.5
Determination of chloride ion content <i>Chloride, as Cl, % w/v</i>	RMS T1014	0.013	0.01 – 0.03