



**Boral Construction Materials  
Materials Technical Services**

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**INTERIM TEST REPORT OF HWR**  
**THE REQUIREMENTS OF AS 1478.1-2000, TYPE HWR ADMIXTURE**  
**(Average of Two Tests using Type SL Cement)**

Tests were conducted to investigate the performance of a sample of HWR at dosage rate of 800 mls/100kg cement as per the requirements in AS1478.1-2000, Chemical Admixture for Concrete, Type HWR (High range water-reducing)

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242197; 242198**

**REQUEST No: 90332**

**Cement: Boral Cement – Type-SL (GP)**

**Date Mixed: 19.06.2020**

**Aggregates: Peppertree 20mm, 10mm, manufactured sand and Dunmore washed fine sand (complying with AS 2758.1)**

**Requirements and Test Results were:**

	<b><u>AS1478.1 REQUIREMENTS</u></b>	<b><u>CONTROL MIX</u></b>	<b><u>MIX CONTAINING HWR</u></b>
Cement Content (Kg/m <sup>3</sup> )	300 ± 15	300	300
Slump (mm)	80 ± 10	80	75
Time of Setting			
Initial Setting	±1 hour	4h:20min	4h:50m (+0:30min)
Final Setting	±1 hour	6h:00min	6h:40m (+0:40min)
Bleeding	Test and Report	1.5%	0.6%
Water Content (L)	85% max	212	180 (85%)
Drying Shrinkage (21 days)	Test and Report	420 µ-strain	410 µ-strain (98%)
Compressive Strength (MPa)			
<u>Age at Test</u>	<b><u>Minimum % of Control</u></b>		
1 day	130%	8.9	12.5 (140%)
3 days	125%	20.0	26.5 (133%)
7 days	120%	28.0	36.0 (129%)
28 days	115%	35.0	44.5 (127%)
90 days			

Simon Dong



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**INTERIM TEST REPORT OF HWR**  
**THE REQUIREMENTS OF AS 1478.1-2000, TYPE HWR ADMIXTURE**  
**(Average of Two Tests using Type SL Cement)**

Tests were conducted to investigate the performance of a sample of HWRR<sub>e</sub> at dosage rate of 1000 mls/100kg cement as per the requirements in AS1478.1-2000, Chemical Admixture for Concrete, Type HWR (High range water-reducing)

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242199; 242200**

**REQUEST No: 90332**

**Cement: Boral Cement – Type-SL (GP)**

**Date Mixed: 19.06.2020**

**Aggregates: Peppertree 20mm, 10mm, manufactured sand and Dunmore washed fine sand (complying with AS 2758.1)**

**Requirements and Test Results were:**

	<b><u>AS1478.1 REQUIREMENTS</u></b>	<b><u>CONTROL MIX</u></b>	<b><u>MIX CONTAINING HWRR<sub>e</sub></u></b>
Cement Content (Kg/m <sup>3</sup> )	300 ± 15	300	300
Slump (mm)	80 ± 10	80	80
Time of Setting			
Initial Setting	1 to 3 hours later	4h:20min	5h:20m (+1hr)
Final Setting	1 to 3 hours later	6h:00min	6h:40m (+0:40min)
Bleeding	Test and Report	1.5%	0.1%
Water Content (L)	85% max	212	168 (79%)
Drying Shrinkage (21 days)	Test and Report	420 µ-strain	430 µ-strain (102%)
Compressive Strength (MPa)			
<u>Age at Test</u>	<u>Minimum % of Control</u>		
1 day	*	8.9	13.0 (146%)
3 days	125%	20.0	29.5 (148%)
7 days	120%	28.0	38.5 (138%)
28 days	115%	35.0	48.0 (137%)
90 days			

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**CONCRETE TRIAL MIX REPORT****CLIENT:** Kaidian International Pty Ltd**Client No:** 911/20**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS**LAB SAMPLE No:** 242195**REQUEST No:** 90332**TEST METHOD:** AS1012 – Part 2 – 1994**MIX DESCRIPTION:** T10883 Control Concrete Trial

DATE MIXED: 19.06.2020

TIME COMMENCED: 7:21 AM

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	22.98	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.12	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.10	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.22	740
Water (incl. admix's)	Main	Lab.			12.59	212

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	80
Concrete Temperature °C	22.0	Air Content (%)	AS1012.4.2	1.2
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2380

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

Fei Yang, File 911, File 8057, Ref 90332SD

Approved Signatory Simon Dong  
Date 18.07.2020 Serial No. CON90332-SD.1Accredited for compliance with ISO/IEC 17025 - Testing  
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**CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242195**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10883 Control Concrete Trial**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242195</b>
<b>Initial Setting Time:</b>	<b>4 hrs &amp; 10 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 00 mins</b>

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.2

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242195**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10883 Control Concrete Trial**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: 22.0 °C  
Average Air Temperature: 21.0 °C  
Ambient Relative Humidity: 52.0 %  
Compaction: **Internal Vibration**

**Bleeding = 1.2%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA x10 <sup>-4</sup> (ml/mm <sup>2</sup> )
10	0
20	0.6
30	1.2
60	2.0
90	3.1
120	4.3
150	5.1
180	5.3 Test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



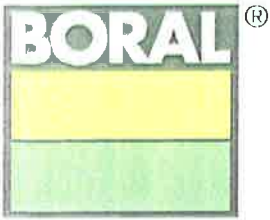
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Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON 90332.S12.3

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Corporate Site #:xbh

**Report No: WMT-20/07297**

**Issue No: 1**

*This report replaces all previous issues of report no 'WMT-20/07297'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guannming Dong*

NATA Accredited Approved Signatory: Simon Dong  
 Laboratory  
 Number: 547 Date of Issue: 17/07/2020  
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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete

### Concrete Specimens and Results

Date & Time Batched	Time Moulded	Plant Code	Grade(MPa)	Air(%)	Specimen Ident.	Dimensions (mm)	Density (kg/m <sup>3</sup> )	Curling Initial	Type of Test	Age (days)	Strength (MPa)	Failure Mode	Location & Remarks
Truck No	Load / Prog. Load	Docket No	Agg(mm)	Compact		Avg. Diameter Height	(kg/m <sup>3</sup> )	(hrs)	Cap				
		Product Code	Design	Slump/Super(mm)	Measured								
19/06/20	07:21	MTS	32	1.2	T10883A	100.4 197	2420	N/A	S	20/06/20	1 9.0	N	Sampling AS 1012.1 Cl 6b
N/A		T10883	20	IV	T10883B	100.1 197	2400	0	S	20/06/20	1 9.0	N	Concrete Temp. (°C): 22
N/A		Control	80/N/A	80/N/A	T10883C	99.9 197	2420	2	G	22/06/20	3 20.5	N	MTS
					T10883D	100.3 198	2400	2	G	22/06/20	3 20.0	N	Lab Sample No:242195
					T10883E	100.0 198	2420	6	G	26/06/20	7 28.5	N	
					T10883F	99.7 196	2440	6	G	26/06/20	7 28.0	N	
					T10883G	99.9 197	2420	27	G	17/07/20	28 34.0	N	
					T10883H	99.9 197	2420	27	G	17/07/20	28 35.5	N	
					T10883I	100.3 196	2420	27	G	17/07/20	28 35.0	N	
					T10883J	N/A N/A	N/A	55	N/A	14/08/20	56 N/A		
					T10883K	N/A N/A	N/A	55	N/A	14/08/20	56 N/A		

### Notes

1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

FailureMode: N = Normal  
 Compaction: IV = Internal Vibrator

### Interim Report



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Corporate Site #:xbh

**Report No: SHR:WMT-20/07297-C01**

Issue No: 1

*This report replaces all previous issues of report no 'SHR:WMT-20/07297-C01'.*

# Concrete Shrinkage Test Report

<b>Client:</b> Kaidian International Pty Ltd	 Accredited for compliance with ISO/IEC 17025 - Testing  NATA Accredited Approved Signatory: Simon Dong Laboratory Number: 547 Date of Issue: 17/07/2020 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL
<b>Project:</b> AS 1478 Compliance Tests	

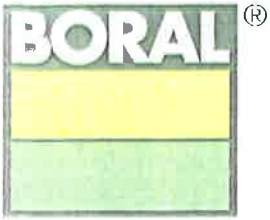
## CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

<b>Sample Details</b>	
<b>Sample ID:</b> WMT-20/07297-C01	<b>Sampling Method:</b> AS 1012.1
<b>Client Ref. No.:</b> N/A	<b>Sampling Procedure:</b> 7.2.1 Uninterrupted discharge
<b>Docket:</b> T10883	
<b>Sample Location:</b> MTS	

<b>Sample Preparation</b>	
<b>Type of Moulding:</b> Laboratory Sampled	<b>Mould Date:</b> 19/06/2020
<b>Initial Curing:</b> Standard	
<b>Demould Date:</b> 19/06/2020	<b>Demould Time:</b> N/A
<b>Notes:</b> X-one loose pin,Z-one loose pin.	

<b>Comments</b> Lab Sample No:242195
-----------------------------------------



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Corporate Site #:xbh

Report No: SHR:WMT-20/07297-C01

Issue No: 1

This report replaces all previous issues of report no 'SHR:WMT-20/07297-C01'

Concrete Shrinkage Test Report

Client: Kaidian International Pty Ltd
Project: AS 1478 Compliance Tests

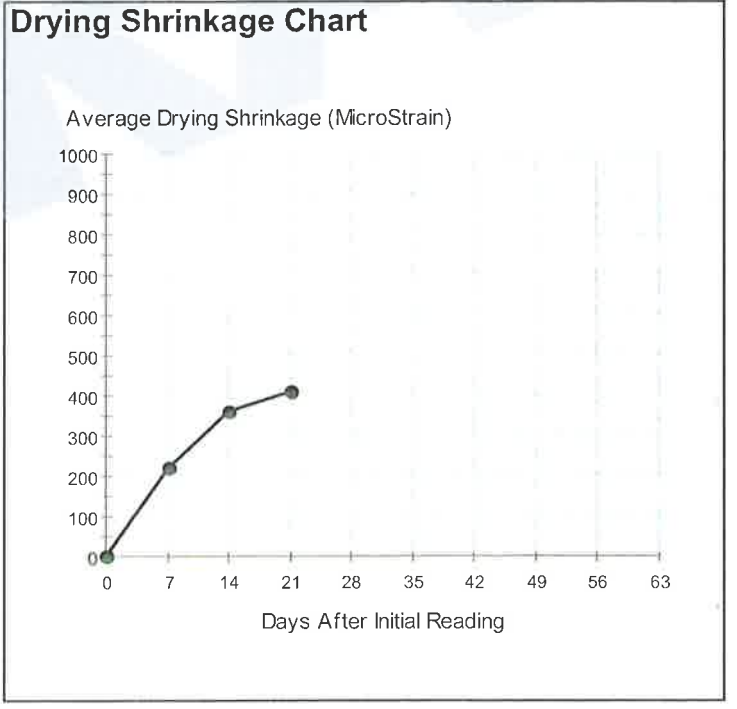
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CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

Measurement Details
Sample ID: WMT-20/07297-C01 Sample Location: MTS
Specimen IDs: Specimen 1: T10883 X, Specimen 2: T10883 Y, Specimen 3: T10883 Z
Initial Reading Date: 26/06/2020
Notes: X-one loose pin,Z-one loose pin.

Shrinkage Test Results table with columns: Age (Days), Test Date, Drying Shrinkage (MicroStrain) for Spec. 1, Spec. 2, Spec. 3, and Average.



Comments
Lab Sample No:242195



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**CONCRETE TRIAL MIX REPORT****CLIENT:** Kaidian International Pty Ltd**Client No:** 911/20**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS**LAB SAMPLE No:** 242196**REQUEST No:** 90332**TEST METHOD:** AS1012 – Part 2 – 1994**MIX DESCRIPTION:** T10884 Control Concrete Trial Duplicate

DATE MIXED: 19.06.2020

TIME COMMENCED: 7:44AM

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	22.98	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.12	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.10	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.22	740
Water (incl. admix's)	Main	Lab.			12.59	212

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	80
Concrete Temperature °C	22.0	Air Content (%)	AS1012.4.2	1.4
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2380

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

Fei Yang, File 911, File 8057, Ref 90332SD

ACCREDITED FOR  
TECHNICAL  
COMPETENCEApproved Signatory Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.4

Simon Dong

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## CONCRETE TEST REPORT

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242196**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10884 Control Concrete Trial Duplicate**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242196</b>
<b>Initial Setting Time:</b>	<b>4 hrs &amp; 20 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 10 mins</b>

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.5

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242196**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10884 Control Concrete Trial Duplicate**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: 22.0 °C  
Average Air Temperature: 21.0 °C  
Ambient Relative Humidity: 52.0 %  
Compaction: Internal Vibration

**Bleeding = 1.7%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA x10 <sup>-4</sup> (ml/mm <sup>2</sup> )
10	0
20	0.4
30	1.0
60	2.6
90	4.5
120	6.1
150	6.9
180	7.3 test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.6

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Corporate Site #:xbh

**Report No: WMT-20/07298**

**Issue No: 1**

*This report replaces all previous issues of report no 'WMT-20/07298'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guannming Dong*

NATA Accredited Approved Signatory: Simon Dong  
 Laboratory  
 Number: 547 Date of Issue: 17/07/2020  
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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete Concrete Specimens and Results

Date & Time Batched	Time Sampled	Plant Code	Grade(MPa)	Air(%)	Specimen	Dimensions	Density	Curing	Type	Date of	Age	Strength	Remarks			
Truck No	Time Moulded	Docket No	Agg(mm)	Compact	Ident.	(mm)	(kg/m <sup>3</sup> )	Initial	of	Test	(days)	(MPa)	Location & Remarks			
Load / Prog. Load	Product Code	Slump/Super(mm)	Design	Measured		Avg.		(hrs)	Cap				Mode			
						Diameter	Height									
19/06/20	07:44	MTS	32	1.4	T10884A	100.2	197	2420	N/A	0	S	20/06/20	1	8.6	N	Sampling AS 1012.1 Cl 6b
N/A		T10884	20	IV	T10884B	100.1	197	2400	0	S	20/06/20	1	8.8	N	Concrete Temp. (°C): 22	
N/A		Control Duplicate	80/N/A	80/N/A	T10884C	100.0	196	2400	2	G	22/06/20	3	20.0	N	MTS	
					T10884D	100.0	197	2400	2	G	22/06/20	3	19.0	N	Lab Sample No: 242196	
					T10884E	100.0	196	2420	6	G	26/06/20	7	28.0	N		
					T10884F	100.0	196	2440	6	G	26/06/20	7	26.5	N		
					T10884G	99.9	195	2420	27	G	17/07/20	28	36.5	N		
					T10884H	99.8	196	2420	27	G	17/07/20	28	35.0	N		
					T10884I	100.4	197	2440	27	G	17/07/20	28	35.0	N		
					T10884J	N/A	N/A	N/A	55	N/A	14/08/20	56	N/A			
					T10884K	N/A	N/A	N/A	55	N/A	14/08/20	56	N/A			

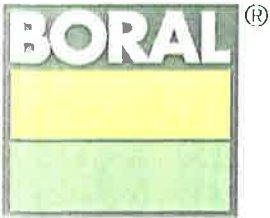
### Notes

1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

Failure Mode: N = Normal  
 Compaction: IV = Internal Vibrator

### Interim Report



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**Materials Technical Services**

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Corporate Site #:xbh

**Report No: SHR:WMT-20/07298-C01**

**Issue No: 1**

*This report replaces all previous issues of report no 'SHR:WMT-20/07298-C01'*

# Concrete Shrinkage Test Report

<b>Client:</b> Kaidian International Pty Ltd	 Accredited for compliance with ISO/IEC 17025 - Testing  NATA Accredited Approved Signatory: Simon Dong Laboratory Number: 547 Date of Issue: 17/07/2020 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL
<b>Project:</b> AS 1478 Compliance Tests	

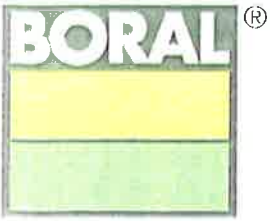
## CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

<b>Sample Details</b>	
<b>Sample ID:</b> WMT-20/07298-C01	<b>Sampling Method:</b> AS 1012.1
<b>Client Ref. No.:</b> N/A	<b>Sampling Procedure:</b> 7.2.1 Uninterrupted discharge
<b>Docket:</b> T10884	
<b>Sample Location:</b> MTS	

<b>Sample Preparation</b>	
<b>Type of Moulding:</b> Laboratory Sampled	<b>Mould Date:</b> 19/06/2020
<b>Initial Curing:</b> Standard	
<b>Demould Date:</b> 19/06/2020	<b>Demould Time:</b> N/A
<b>Notes:</b> X-two loose pins. Y-two loose pins.	

<b>Comments</b> Lab Sample No: 242196
------------------------------------------



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Corporate Site #:xbh

Report No: SHR:WMT-20/07298-C01

Issue No: 1

This report replaces all previous issues of report no 'SHR:WMT-20/07298-C01'

Concrete Shrinkage Test Report

Client: Kaidian International Pty Ltd

Project: AS 1478 Compliance Tests



Accredited for compliance with ISO/IEC 17025 - Testing

Signature: Guanming Dong

NATA Accredited Laboratory Approved Signatory: Simon Dong

Number: 547 Date of Issue: 17/07/2020

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CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

Measurement Details

Sample ID: WMT-20/07298-C01

Sample Location: MTS

Specimen IDs: Specimen 1: T10884 X
Specimen 2: T10884 Y
Specimen 3: T10884 Z

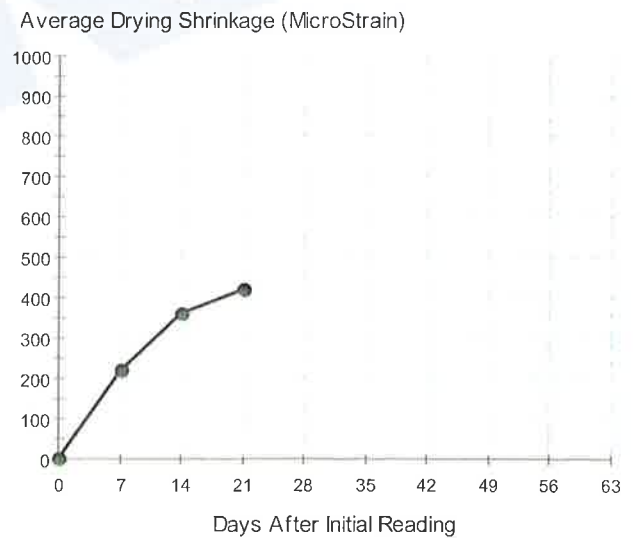
Initial Reading Date: 26/06/2020

Notes: X-two loose pins. Y-two loose pins.

Shrinkage Test Results

Table with 7 columns: Age (Days), Test Date, Drying Shrinkage (MicroStrain) for Spec. 1, Spec. 2, Spec. 3, and Average. Rows show data for 7, 14, 21, 28, and 56 days.

Drying Shrinkage Chart



Comments

Lab Sample No: 242196

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**CONCRETE TRIAL MIX REPORT****CLIENT:** Kaidian International Pty Ltd**Client No:** 911/20**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS**LAB SAMPLE No:** 242197**REQUEST No:** 90332**TEST METHOD:** AS1012 – Part 2 – 1994**MIX DESCRIPTION:** T10885 HWR Concrete Trial

DATE MIXED: 19.06.2020

TIME COMMENCED: 9:26AM

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	23.34	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.54	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.34	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.88	750
Water (incl. admix's)	Main	Lab.			10.76	180

	Type	Source	Dilution	Batch Quantity	Dose Rate
Admixtures	HWR	KDSP	Undiluted	144mls	800ml/100kg Cement

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	75
Concrete Temperature °C	23.0	Air Content (%)	AS1012.4.2	3.8
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2360

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

Fei Yang, File 911, File 8057, Ref 90332SD



Approved Signatory

Simon Dong

Date 18.07.2020

Serial No. CON90332.SD.7

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Number: 547



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**CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242197**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10885 HWR Concrete Trial**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242197</b>
<b>Initial Setting Time:</b>	<b>4 hrs &amp; 50 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 30 mins</b>

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory

Simon Dong

Date 18.07.2020

Serial No. CON90332.SD.8

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242197**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10885 HWR Concrete Trial**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: 22.0 °C  
Average Air Temperature: 21.0 °C  
Ambient Relative Humidity: 52.0 %  
Compaction: Internal Vibration

**Bleeding = 0.5%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA $\times 10^{-4}$ (ml/mm <sup>2</sup> )
10	0
20	0
30	0
60	0
90	0.2
120	0.4
150	0.8
180	1.6
210	1.8 Test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



ACCREDITED FOR  
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Approved Signatory

Simon Dong

Date 18.07.2020

Serial No. CON90332.SD.9

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Corporate Site #:xbh

**Report No: WMT-20/07299**

**Issue No: 1**

*This report replaces all previous issues of report no 'WMT-20/07299'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests



Accredited for compliance with ISO/IEC 17025 - Testing

*Guoxinming Dong*

NATA Accredited Approved Signatory: Simon Dong  
 Laboratory

Number: 547 Date of Issue: 18/07/2020

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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete Concrete Specimens and Results

Date & Time Batched	Time Sampled	Plant Code	Grade(MPa)	Air(%)	Specimen	Dimensions	Density	Curing	Type	Date of	Age	Strength	Mark	Fail	Location & Remarks
Truck No	Time Moulded	Docket No	Agg(mm)	Compact	Ident.	(mm)	(kg/m <sup>3</sup> )	Initial	of	Test	(days)	(MPa)		Mode	
Load / Prog. Load		Product Code	Slump/Super(mm)			Avg. Diameter Height		(hrs)	Cap						
		Design	Measured					(days)							
19/06/20	09:26	MTS	32	3.8	T10885A	100.1 198	2440	N/A	0	G	20/06/20	1	12.5	N	Sampling AS 1012.1 Cl 6b Concrete Temp. (°C): 23 MTS Lab Sample No: 242197
N/A		T10885	20	IV	T10885B	100.1 196	2440	0	G	20/06/20	1	12.5	N		
N/A		HRW	80/N/A	75/N/A	T10885C	100.0 193	2420	2	G	22/06/20	3	27.0	N		
					T10885D	100.6 195	2440	2	G	22/06/20	3	27.5	N		
					T10885E	100.0 198	2440	6	G	26/06/20	7	36.5	N		
					T10885F	100.1 198	2440	6	G	26/06/20	7	36.5	N		
					T10885G	100.0 193	2460	27	G	17/07/20	28	44.0	N		
					T10885H	100.1 196	2440	27	G	17/07/20	28	45.0	N		
					T10885I	100.7 194	2440	27	G	17/07/20	28	45.5	N		
					T10885J	N/A N/A	N/A	55	N/A	14/08/20	56	N/A			
					T10885K	N/A N/A	N/A	55	N/A	14/08/20	56	N/A			

### Notes

1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

FailureMode: N = Normal  
 Compaction: IV = Internal Vibrator

### Interim Report



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Corporate Site #:xbh

Report No: SHR:WMT-20/07299-C01

Issue No: 1

This report replaces all previous issues of report no 'SHR:WMT-20/07299-C01'.

Concrete Shrinkage Test Report

Client: Kaidian International Pty Ltd
Project: AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing
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Guoaming Dong signature
NATA Accredited Laboratory
Number: 547 Date of Issue: 18/07/2020
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CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

Sample Details
Sample ID: WMT-20/07299-C01
Client Ref. No.: N/A
Docket: T10885
Sample Location: MTS
Sampling Method: AS 1012.1
Sampling Procedure: 7.2.1 Uninterrupted discharge

Sample Preparation
Type of Moulding: Laboratory Sampled
Initial Curing: Standard
Demould Date: 19/06/2020
Notes: Y-one loose pin, Z-one loose pin.
Mould Date: 19/06/2020
Demould Time: N/A

Comments

Lab Sample No: 242197



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Corporate Site #:xbh

**Report No: SHR:WMT-20/07299-C01**


**Issue No: 1**

*This report replaces all previous issues of report no 'SHR:WMT-20/07299-C01'*

# Concrete Shrinkage Test Report

**Client:** Kaidian International Pty Ltd  
  
**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guannming Dong*

NATA Accredited Laboratory  
Number: 547  
Date of Issue: 18/07/2020  
Approved Signatory: Simon Dong  
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## CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

**Measurement Details**

**Sample ID:** WMT-20/07299-C01      **Sample Location:** MTS

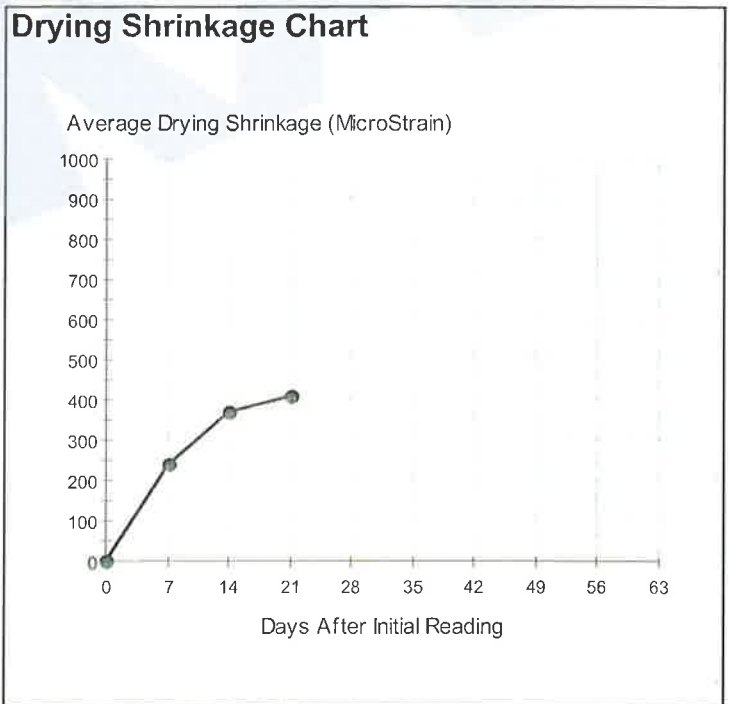
**Specimen IDs:** Specimen 1: T10885 X  
Specimen 2: T10885 Y  
Specimen 3: T10885 Z

**Initial Reading Date:** 26/06/2020

**Notes:** Y-one loose pin, Z-one loose pin.

**Shrinkage Test Results**

Age (Days)	Test Date	Drying Shrinkage (MicroStrain)			
		Spec. 1	Spec. 2	Spec. 3	Average
7	3/07/2020	232	232	252	240
14	10/07/2020	352	356	388	370
21	17/07/2020	392	396	432	410
28	24/07/2020	N/A	N/A	N/A	N/A
56	21/08/2020	N/A	N/A	N/A	N/A



### Comments

Lab Sample No: 242197


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## CONCRETE TRIAL MIX REPORT

**CLIENT:** Kaidian International Pty Ltd

**Client No:** 911/20

**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS

**LAB SAMPLE No:** 242198

**REQUEST No:** 90332

**TEST METHOD:** AS1012 – Part 2 – 1994

**MIX DESCRIPTION:** T10886 HWR Concrete Trial Duplicate

DATE MIXED: 19.06.2020

TIME COMMENCED: 9:54AM

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	23.34	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.54	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.34	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.88	750
Water (incl. admix's)	Main	Lab.			10.76	180

	Type	Source	Dilution	Batch Quantity	Dose Rate
Admixtures	HWR	KDSP	Undiluted	144mls	800ml/100kg Cement

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	75
Concrete Temperature °C	23.0	Air Content (%)	AS1012.4.2	3.8
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2360

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.

**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

**Fei Yang, File 911, File 8057, Ref 90332SD**

 Approved Signatory:   
 Date: 18.07.2020 Serial No. CON90332.SD.10

Simon Dong

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Number: 547



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**CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242198**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10886 HWR Concrete Trial Duplicate**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242198</b>
<b>Initial Setting Time:</b>	<b>4 hrs &amp; 50 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 40 mins</b>

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON 90332.SD.11

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242198**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10886 HWR Concrete Trial Duplicate**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: 22.0 °C  
Average Air Temperature: 21.0 °C  
Ambient Relative Humidity: 52.0 %  
Compaction: Internal Vibration

**Bleeding = 0.7%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA x10 <sup>-4</sup> (ml/mm <sup>2</sup> )
10	0
20	0
30	0
60	0.2
90	0.4
120	1.2
150	2.4
180	2.4 Test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**

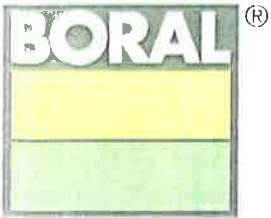


Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.12

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Corporate Site #:xbh

**Report No: WMT-20/07300**

**Issue No: 1**

*This report replaces all previous issues of report no 'WMT-20/07300'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests



Accredited for compliance with ISO/IEC 17025 - Testing

*Guanning Dong*

NATA Accredited Approved Signatory: Simon Dong  
 Laboratory

Number: 547 Date of Issue: 18/07/2020

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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete Concrete Specimens and Results

Date & Time Batched	Time Moulded	Plant Code	Grade(MPa)	Air(%)	Specimen Ident.	Dimensions (mm)	Density (kg/m <sup>3</sup> )	Curing Initial	Type	Date of Test	Age (days)	Strength (MPa)	Remarks	Location & Remarks
Truck No	Product Code	Docket No	Agg(mm)	Compact		Avg.	(kg/m <sup>3</sup> )	(hrs)	of Cap	Test	(days)	(MPa)	Mode	
Load / Prog. Load	Design		Slump/Super(mm)	Measured		Diameter Height								
19/06/20	09:54	MTS	32	3.6	T10886A	100.6 198	2440	N/A	0	G	20/06/20	1 12.0	N	Sampling AS 1012.1 Cl 6b
N/A		T10886	20	IV	T10886B	100.3 198	2440	0	G	20/06/20	1 12.0	N	N	Concrete Temp. (°C): 23
N/A		HWR Duplicate	80/N/A	75/N/A	T10886C	100.1 198	2420	2	G	22/06/20	3 25.5	N	N	MTS Lab Sample No:242198
					T10886D	100.5 198	2420	2	G	22/06/20	3 26.0	N	N	
					T10886E	100.2 197	2440	6	G	26/06/20	7 35.5	N	N	
					T10886F	100.3 195	2440	6	G	26/06/20	7 32.0	N	E S	
					T10886G	100.7 195	2440	27	G	17/07/20	28 44.5	N	N	
					T10886H	100.5 194	2440	27	G	17/07/20	28 43.5	N	N	
					T10886I	100.2 194	2460	27	G	17/07/20	28 43.5	N	N	
					T10886J	N/A N/A	N/A	55	N/A	14/08/20	56 N/A	N/A	N	
					T10886K	N/A N/A	N/A	55	N/A	14/08/20	56 N/A	N/A	N	

### Notes

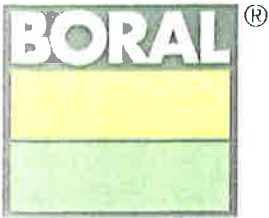
1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

Marks: E = Excluded from AS1379  
 FailureMode: N = Normal, S = Shear  
 Compaction: IV = Internal Vibrator

### Interim Report





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**Materials Technical Services**

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Corporate Site #:xbh



**Report No: SHR:WMT-20/07300-C01**

**Issue No: 1**

*This report replaces all previous issues of report no 'SHR:WMT-20/07300-C01'*

# Concrete Shrinkage Test Report

<b>Client:</b>	Kaidian International Pty Ltd
<b>Project:</b>	AS 1478 Compliance Tests

 ATA TECHNICAL COMPETENCE	Accredited for compliance with ISO/IEC 17025 - Testing    NATA Accredited Approved Signatory: Simon Dong Laboratory Number: 547 Date of Issue: 18/07/2020 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL
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## CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

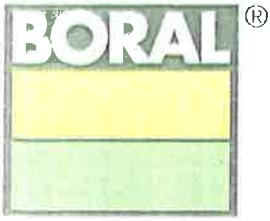
We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

<b>Sample Details</b>			
<b>Sample ID:</b>	WMT-20/07300-C01	<b>Sampling Method:</b>	AS 1012.1
<b>Client Ref. No.:</b>	N/A	<b>Sampling Procedure:</b>	7.2.1 Uninterrupted discharge
<b>Docket:</b>	T10886		
<b>Sample Location:</b>	MTS		

<b>Sample Preparation</b>			
<b>Type of Moulding:</b>	Laboratory Sampled	<b>Mould Date:</b>	19/06/2020
<b>Initial Curing:</b>	Standard	<b>Demould Time:</b>	N/A
<b>Demould Date:</b>	19/06/2020		
<b>Notes:</b>	Z-one loose pin.		

### Comments

Lab Sample No:242198



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Corporate Site #:xbh

Report No: SHR:WMT-20/07300-C01

Issue No: 1

This report replaces all previous issues of report no 'SHR:WMT-20/07300-C01'

Concrete Shrinkage Test Report

Client: Kaidian International Pty Ltd
Project: AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing
NATA TECHNICAL COMPETENCE
Guanming Dong
NATA Accredited Laboratory Number: 547
Approved Signatory: Simon Dong
Date of Issue: 18/07/2020
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CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

Measurement Details

Sample ID: WMT-20/07300-C01 Sample Location: MTS
Specimen IDs: Specimen 1: T10886 X
Specimen 2: T10886 Y
Specimen 3: T10886 Z
Initial Reading Date: 26/06/2020
Notes: Z-one loose pin.

Shrinkage Test Results

Table with 6 columns: Age (Days), Test Date, Spec. 1, Spec. 2, Spec. 3, Average. Rows show data for 7, 14, 21, 28, and 56 days.

Drying Shrinkage Chart



Comments

Lab Sample No:242198


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**CONCRETE TRIAL MIX REPORT**
**CLIENT:** Kaidian International Pty Ltd

**Client No:** 911/20

**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS

**LAB SAMPLE No:** 242199

**REQUEST No:** 90332

**TEST METHOD:** AS1012 – Part 2 – 1994

**MIX DESCRIPTION:** T10887 HWRRe Concrete Trial

DATE MIXED: 19.06.2020

TIME COMMENCED: 10:44AM

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	23.34	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.54	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.34	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.88	740
Water (incl. admix's)	Main	Lab.			10.08	166

	Type	Source	Dilution	Batch Quantity	Dose Rate
Admixtures	HWRRe	KDSP	Undiluted	180mls	1000ml/100kg Cement

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	80
Concrete Temperature °C	23.0	Air Content (%)	AS1012.4.2	5.8
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2340

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.

**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

Fei Yang, File 911, File 8057, Ref 90332SD


 Approved Signatory Simon Dong Simon Dong  
 Date 18.07.2020 Serial No. CON90332.SD.13

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**CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242199**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10887 HWRRe Concrete Trial**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242199</b>
<b>Initial Setting Time:</b>	<b>5 hrs &amp; 20 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 40 mins</b>

**Note: Sample prepared in this laboratory**

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory: *Simon Dong* Simon Dong

Date 18-07-2020 Serial No. CON90332-SD.14

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242199**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10887 HWRRc Concrete Trial**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: **22.0 °C**  
Average Air Temperature: **21.0 °C**  
Ambient Relative Humidity: **52.0 %**  
Compaction: **Internal Vibration**

**Bleeding = 0.1%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA x10 <sup>-4</sup> (ml/mm <sup>2</sup> )
10	0
20	0
30	0
60	0
90	0
120	0
150	0
180	0.2 Test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.15

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Corporate Site #:xbh

**Report No: WMT-20/07301**

**Issue No: 1**


*This report replaces all previous issues of report no 'WMT-20/07301'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guannming Dong*

NATA Accredited Laboratory  
 Number: 547

Approved Signatory: Simon Dong  
 Date of Issue: 18/07/2020

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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete Concrete Specimens and Results

Date & Time Batched	Time Sampled	Plant Code	Grade(MPa)	Alr(%)	Specimen Ident.	Dimensions (mm)	Density (kg/m <sup>3</sup> )	Curing Initial	Type	Date of Test	Age (days)	Strength (MPa)	Fail Mode	Location & Remarks		
Truck No	Time Moulded	Docket No	Agg(mm)	Compact		(mm)	(kg/m <sup>3</sup> )	Std	of	Test	(days)	(MPa)	Mode			
Load / Prog. Load		Product Code	Slump/Super(mm)	Design	Measured	Avg. Diameter	Height	(hrs)	(days)	Cap						
19/06/20	10:44	MTS	32	5.8	T10887A	100.0	197	2440	N/A	0	G	20/06/20	1	13.5	N	Sampling AS 1012.1 Cl 6b
N/A		T10887	20	IV	T10887B	100.0	198	2440	0	G	20/06/20	1	13.5	N	Concrete Temp. (°C): 23	
N/A		HWRRe	80/N/A	80/N/A	T10887C	99.9	196	2420	2	G	22/06/20	3	28.5	N	MTS	
					T10887D	100.0	197	2440	2	G	22/06/20	3	29.5	N	Lab Sample No: 242199	
					T10887E	100.1	197	2460	6	G	26/06/20	7	37.5	N		
					T10887F	100.7	197	2460	6	G	26/06/20	7	36.0	N		
					T10887G	100.0	195	2460	27	G	17/07/20	28	48.0	N		
					T10887H	100.2	195	2460	27	G	17/07/20	28	48.0	N		
					T10887I	100.5	195	2460	27	G	17/07/20	28	48.0	N		
					T10887J	N/A	N/A	N/A	55	N/A	14/08/20	56	N/A			
					T10887K	N/A	N/A	N/A	55	N/A	14/08/20	56	N/A			

### Notes

1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

FailureMode: N = Normal  
 Compaction: IV = Internal Vibrator

### Interim Report



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Corporate Site #:xbh

**Report No: SHR:WMT-20/07301-C01**

**Issue No: 1**

*This report replaces all previous issues of report no 'SHR:WMT-20/07301-C01'.*

# Concrete Shrinkage Test Report

<b>Client:</b> Kaidian International Pty Ltd	 <p>Accredited for compliance with ISO/IEC 17025 - Testing</p> <p><i>Guanning Dong</i></p> <p>NATA Accredited Approved Signatory: Simon Dong Laboratory Number: 547 Date of Issue: 18/07/2020 THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL</p>
<b>Project:</b> AS 1478 Compliance Tests	

## CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

### Sample Details

<b>Sample ID:</b> WMT-20/07301-C01	<b>Sampling Method:</b> AS 1012.1
<b>Client Ref. No.:</b> N/A	<b>Sampling Procedure:</b> 7.2.1 Uninterrupted discharge
<b>Docket:</b> T10887	
<b>Sample Location:</b> MTS	

### Sample Preparation

<b>Type of Moulding:</b> Laboratory Sampled	<b>Mould Date:</b> 19/06/2020
<b>Initial Curing:</b> Standard	
<b>Demould Date:</b> 19/06/2020	<b>Demould Time:</b> N/A
<b>Notes:</b> No loose pins.	

### Comments

Lab Sample No: 242199



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Corporate Site #:xbh

**Report No: SHR:WMT-20/07301-C01**

**Issue No: 1**


*This report replaces all previous issues of report no 'SHR:WMT-20/07301-C01'*

# Concrete Shrinkage Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guannming Dong*

NATA Accredited Laboratory  
Number: 547

Approved Signatory: Simon Dong  
Date of Issue: 18/07/2020

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## CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

### Measurement Details

**Sample ID:** WMT-20/07301-C01      **Sample Location:** MTS

**Specimen IDs:** Specimen 1: T10887 X  
Specimen 2: T10887 Y  
Specimen 3: T10887 Z

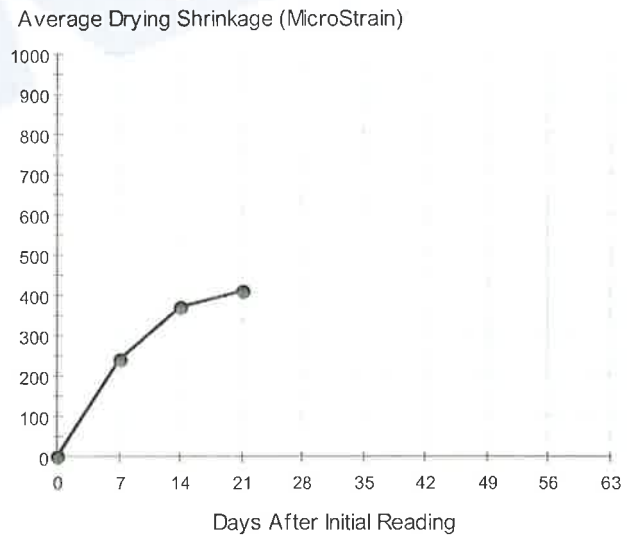
**Initial Reading Date:** 26/06/2020

**Notes:** No loose pins.

### Shrinkage Test Results

Age (Days)	Test Date	Drying Shrinkage (MicroStrain)			
		Spec. 1	Spec. 2	Spec. 3	Average
7	3/07/2020	240	240	236	240
14	10/07/2020	368	368	360	370
21	17/07/2020	412	416	400	410
28	24/07/2020	N/A	N/A	N/A	N/A
56	21/08/2020	N/A	N/A	N/A	N/A

### Drying Shrinkage Chart



### Comments

Lab Sample No: 242199




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## CONCRETE TRIAL MIX REPORT

**CLIENT:** Kaidian International Pty Ltd**Client No:** 911/20**PROJECT:** CONCRETE AS 1478 COMPLIANCE TESTS**LAB SAMPLE No:** 242200**REQUEST No:** 90332**TEST METHOD:** AS1012 – Part 2 – 1994**MIX DESCRIPTION:** T10888 HWRRe Concrete Trial

DATE MIXED: 19.06.2020

TIME COMMENCED: 13:14pm

	Type	Source	Moisture Content (%)		S.S.D. Batch Weights (kg)	S.S.D. Cubic Metre Batch Weights (kg/m <sup>3</sup> )
			As Batch	SSD		
Cement (bulk)	SL	Boral Cement			18.00	300
Fine Sand	Washed	Dunmore	4.0	0.4	23.34	390
Coarse Sand	Man Sand	Peppertree	2.2	0.6	27.54	460
10mm Aggregates	BM	Peppertree	1.5	0.5	17.34	290
20mm Aggregates	BM	Peppertree	1.1	0.5	44.88	740
Water (incl. admix's)	Main	Lab.			10.08	166

Admixtures	Type	Source	Dilution	Batch Quantity	Dose Rate
	HWRRe	KDSP	Undiluted	180mls	1000ml/100kg Cement

Room Temperature °C	21.0	Slump (mm)	AS 1012.3.1	80
Concrete Temperature °C	23.0	Air Content (%)	AS1012.4.2	5.8
Type of Mixer	PAN	Density (kg/m <sup>3</sup> )	AS1012.5	2340

**OTHER TESTS:** Compressive strength, drying shrinkage, bleeding, setting time.**NOTE:** Density / Air check bowl compacted by rodding.

Appearance of Concrete: workable.

Fei Yang, File 911, File 8057, Ref 90332SD

ACCREDITED FOR  
TECHNICAL  
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Approved Signatory

Simon Dong

Date 18.07.2020 Serial No. CON90332.SD.16

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NATA Accredited Laboratory

Number: 547



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**CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242199**

**REQUEST No: 90332**

**TEST METHOD: AS1012.18 – Setting time of Fresh Concrete, Mortar and Grout**

**SAMPLE IDENTIFICATION: T10887 HWRRe Concrete Trial**

Cast date: 19.06.2020

<b>Lab Sample No:</b>	<b>242199</b>
<b>Initial Setting Time:</b>	<b>5 hrs &amp; 20 mins</b>
<b>Final Setting Time:</b>	<b>6 hrs &amp; 40 mins</b>

**Note: Sample prepared in this laboratory**

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong  
Date 18.07.2020 Serial No. CON90332.SD.17

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**BLEEDING of CONCRETE TEST REPORT**

**CLIENT: Kaidian International Pty Ltd**

**Client No: 911/20**

**PROJECT: CONCRETE AS 1478 COMPLIANCE TESTS**

**LAB SAMPLE No: 242199**

**REQUEST No: 90332**

**SAMPLE IDENTIFICATION: T10887 HWRRc Concrete Trial**

**TEST METHOD: AS1012 – Part 6 – Bleeding of Concrete**

DATE OF TEST: 19.06.2020

Concrete Temperature: **22.0 °C**  
Average Air Temperature: **21.0 °C**  
Ambient Relative Humidity: **52.0 %**  
Compaction: **Internal Vibration**

**Bleeding = 0.1%**

ELAPSED TIME (min)	BLEED WATER PER UNIT SURFACE AREA x10 <sup>-4</sup> (ml/mm <sup>2</sup> )
10	0
20	0
30	0
60	0
90	0
120	0
150	0
180	0.2 Test Ended

**Note:** Sample prepared in this laboratory

**Fei Yang, File 911, File 8057, Ref 90332SD**



Approved Signatory *Simon Dong* Simon Dong

Date 18-07-2020 Serial No. LDN90332.SD.18

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Corporate Site #:xbh

**Report No: WMT-20/07302**

**Issue No: 1**

*This report replaces all previous issues of report no 'WMT-20/07302'.*

# Concrete Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests



Accredited for compliance with ISO/IEC 17025 - Testing

*Guanning Dong*

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 Approved Signatory: Simon Dong

Number: 547 Date of Issue: 18/07/2020

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## COMPRESSIVE STRENGTH OF CONCRETE CYLINDERS

### Details of Sampled Concrete Concrete Specimens and Results

Date & Time Batched	Time Sampled	Plant Code	Grade(MPa)	Air(%)	Specimen	Dimensions	Density	Curing	Type	Date of	Age	Strength	Marks	Fail	Location & Remarks
Truck No	Time Moulded	Docket No	Agg(mm)	Compact	Ident.	(mm)	(kg/m <sup>3</sup> )	Initial	of	Test	(days)	(MPa)		Mode	
Load / Prog. Load		Product Code	Slump/Super(mm)			Avg.		(hrs)	Cap						
			Design	Measured		Diameter	Height								
19/06/20	13:14	MTS	32	5.8	T10888A	99.9 195	2420	N/A 0	G	20/06/20	1	12.0	N	N	Sampling AS 1012.1 Cl 6b
N/A		T10888	20	IV	T10888B	99.8 194	2420	0	G	20/06/20	1	12.5	N	N	Concrete Temp. (°C): 23
N/A		HWRRe	80/N/A	80/N/A	T10888C	99.8 197	2420	2	G	22/06/20	3	29.5	N	N	MTS
					T10888D	100.2 197	2420	2	G	22/06/20	3	30.0	N	N	Lab Sample No:242200
					T10888E	99.8 198	2440	6	G	26/06/20	7	39.0	N	N	
					T10888F	99.5 198	2440	6	G	26/06/20	7	40.0	N	N	
					T10888G	99.9 197	2440	27	G	17/07/20	28	47.0	N	N	
					T10888H	99.7 195	2440	27	G	17/07/20	28	48.0	N	N	
					T10888I	99.9 194	2460	27	G	17/07/20	28	47.5	N	N	
					T10888J	N/A N/A	N/A	55	N/A	14/08/20	56	N/A			
					T10888K	N/A N/A	N/A	55	N/A	14/08/20	56	N/A			

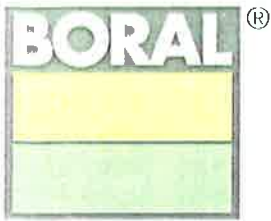
### Notes

1. Sampling in accordance with AS 1012.1
2. Slump test in accordance with AS 1012.3.1
3. Air content in accordance with AS 1012.4.2
4. Compression specimen compaction by vibration, in accordance with AS 1012.8.1 Clause 7.4
5. Initial curing in accordance with AS 1012.8.1 Clause 9.2.2
6. Standard curing in accordance with AS 1012.8.1 Clause 9.3(a)
7. Capping R - Rubber, S - Sulphur, N - Nil, T - Timber, G - Ground
8. Compressive strength in accordance with AS 1012.9
9. Density in accordance with AS 1012.12.1
10. Moisture condition SSD in accordance with AS 1012.12.1, unless otherwise stated

### Remarks

FailureMode: N = Normal  
 Compaction: IV = Internal Vibrator

### Interim Report



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**Materials Technical Services**

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Corporate Site #:xbh

**Report No: SHR:WMT-20/07302-C01**

**Issue No: 1**

*This report replaces all previous issues of report no 'SHR:WMT-20/07302-C01'.*

# Concrete Shrinkage Test Report

<b>Client:</b>	Kaidian International Pty Ltd
<b>Project:</b>	AS 1478 Compliance Tests

 NATA Accredited Laboratory Number: 547	Accredited for compliance with ISO/IEC 17025 - Testing  Approved Signatory: Simon Dong Date of Issue: 18/07/2020
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## CONCRETE SHRINKAGE TEST REPORT - PART A PREPARATION ONLY

We advise that the curing and preparation were carried out in accordance with AS1012.8.4 unless otherwise stated in the notes.

<b>Sample Details</b>	
<b>Sample ID:</b>	WMT-20/07302-C01
<b>Client Ref. No.:</b>	N/A
<b>Docket:</b>	T10888
<b>Sample Location:</b>	MTS
<b>Sampling Method:</b>	AS 1012.1
<b>Sampling Procedure:</b>	7.2.1 Uninterrupted discharge

<b>Sample Preparation</b>	
<b>Type of Moulding:</b>	Laboratory Sampled
<b>Initial Curing:</b>	Standard
<b>Demould Date:</b>	19/06/2020
<b>Notes:</b>	X-one loose pin, Y-one loose pin.
<b>Mould Date:</b>	19/06/2020
<b>Demould Time:</b>	N/A

### Comments

Lab Sample No:242200



Build something great

**Materials Technical Services**  
 Boral Resources (NSW) Pty Ltd  
 ACN: 000 756 507  
 3-5 Gibbon Road, BAULKHAM HILLS, NSW 2153  
 PO Box 400  
 Winston Hills, NSW, 2153  
 Phone Number: (02) 9624 9900  
 Fax Number: (02) 9624 9999

Corporate Site #:xbh

**Report No: SHR:WMT-20/07302-C01**

**Issue No: 1**


*This report replaces all previous issues of report no 'SHR:WMT-20/07302-C01'.*

# Concrete Shrinkage Test Report

**Client:** Kaidian International Pty Ltd

**Project:** AS 1478 Compliance Tests

Accredited for compliance with ISO/IEC 17025 - Testing



*Guoxinming Dong*

NATA Accredited Laboratory  
 Number: 547

Approved Signatory: Simon Dong  
 Date of Issue: 18/07/2020

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## CONCRETE SHRINKAGE TEST REPORT - PART B MEASUREMENT ONLY

Test done in accordance with AS1012.13.

**Measurement Details**

**Sample ID:** WMT-20/07302-C01      **Sample Location:** MTS

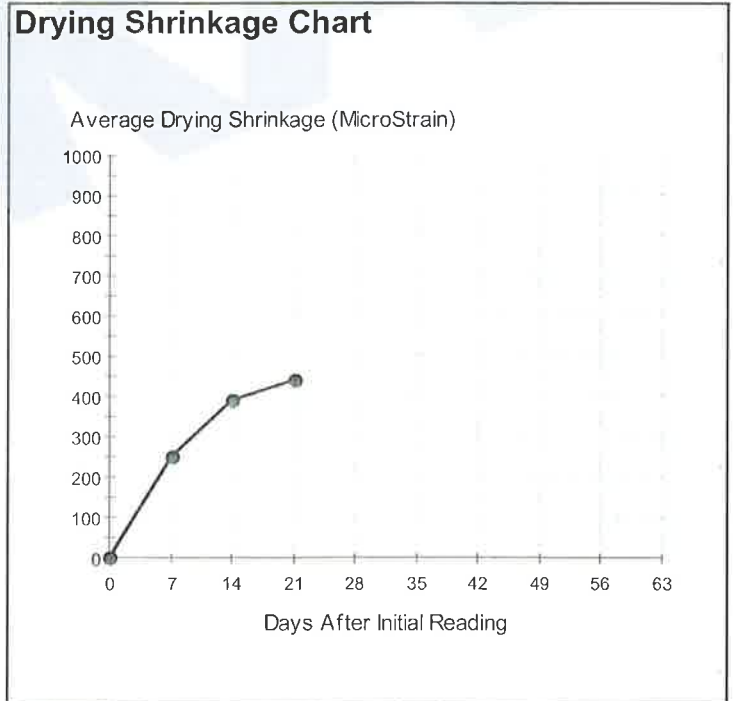
**Specimen IDs:** Specimen 1: T10888 X  
 Specimen 2: T10888 Y  
 Specimen 3: T10888 Z

**Initial Reading Date:** 26/06/2020

**Notes:** X-one loose pin, Y-one loose pin.

**Shrinkage Test Results**

Age (Days)	Test Date	Drying Shrinkage (MicroStrain)			
		Spec. 1	Spec. 2	Spec. 3	Average
7	3/07/2020	260	244	248	250
14	10/07/2020	388	404	380	390
21	17/07/2020	436	452	428	440
28	24/07/2020	N/A	N/A	N/A	N/A
56	21/08/2020	N/A	N/A	N/A	N/A



**Comments**

Lab Sample No:242200