

VERSION 2.2



OCJ GROUPS PROFILE

DO IT ONCE DO IT RIGHT

PRESENTED BY: JOE MATIE, SHANT SAHAKIAN & MARTIN SABAH

OCJ GROUPS LTD

1395 SYDNEY RD, FAWKNER VIC 3060

OCJ GROUPS PROFILE

WHO WE ARE?

With over 10 years of experience in Road safety surfacing and 20 years of experience in Waterproofing Constructions, OCJ Groups has maintained its market presence through the sustained efforts of its management team, and a reflection of their dedication to resolving complex technical issues while providing a high-quality product to our customers.

We have a specialized administrative team to supplement our range of services. This offers our customers the satisfaction to know that they have the most integrated technical team in order to deliver the only mutually acceptable result. Zero Deficiencies, Time, and on Budget

With the knowledge base of a skilled group of professionals, OCJ can build on its reputation of being the preferred contractor in Melbourne region areas.

QUALITY

We are committed to installing items to meet our clients' demands. Our items offered are always being monitored and our services are improved. The items utilized by OCJ are carefully selected to the advantage of our esteemed clients.

The quality of our products is guaranteed by assessment, control, and verification processes at all stages of installation, through our quality processes.

We are devoted to meeting customer and high-quality standards and are committed to continuously improving our quality management system to ensure that our reputation with our customers improves by reaching a high level.

A set of processes that reflect our confidence and our expertise in the areas we choose will reach this degree of quality assurance. Our training ensures that our projects meet the specifications and the performance requirements of our customers.

SERVICES & PROJECTS

No.	Services
1	ROAD SAFETY SURFACING High friction surfacing & Colored surface treatments. We use OMNIGRIP HF high friction surface treatment (HFST), it is a veneer overlay applied to asphalt and / or concrete roads and highways to improve surface friction and resulting in decreased braking distances and threshold impact speeds in emergency situations.

No.	Services
-----	----------

The Benefits

High Friction – SRV > 70

Increased Surface Texture

Up to 33% Reduction in Vehicle Braking Distances

Reduced Threshold Braking Speeds

Fuel & Oil Resistant

Accident Reduction

Concrete / Asphalt Surfaces

Examples below



Perth CBD



BUS PRIORITY LANES



Bus Lanes



GREEN Bicycle Lanes

No. Services



Coloured Range: .3mm | .8mm | .8-15mm
| 1.5-2.5mm | 2.5-5mm | 5-10mm



Chaoyang Rd , Jiangyin,



Jiangsu Province, China

Safetygrip aggregates are available in a wide range of colours and can be used for traffic awareness for a wide range of criteria, hazardous and dangerous intersections, traffic black spots, roundabouts, winding roads and bends, changing of speed zones, bus lanes, cycle lanes, pedestrian walkways, highlighting carriageways and parking bays, pathways as well as driveways.

2 WATERPROOFING

Areas of services include:

Balconies, Retaining walls / Basement Walls,

Internal Wet Areas

Roof Decks, Green Roofs, Carparks,

Tunnels, Tanks – Potable water,

Sprinkler, Blackwater

No.	Services
-----	----------

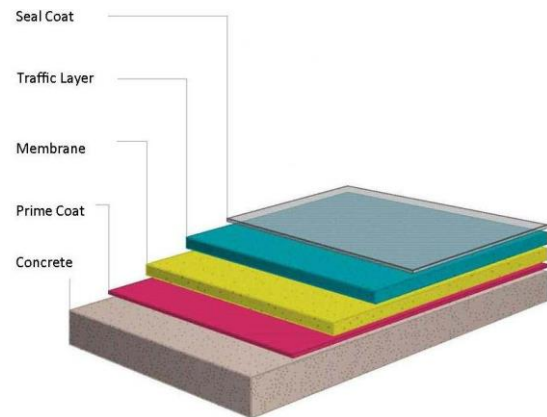
	Bridge Decks, Walkways
--	------------------------

Examples below



Commercial Surfacing

Waterproof Surfacing



No.	Services
	
	
	
Outdoor Glass Aggregate	INDOORS / OUTDOORS



To Whom It May Concern:

Coloured Recycled Glass Pty Ltd (CRG) hereby provides accreditation for

Mr Youseff Matei , Director of OCJ Solutions Pty Ltd

CRG and OCJ Solutions have worked together on several successful projects around Victoria (AUS), and in doing so CRG has full confidence in Mr Youseff's skills ability and extensive know how on the application of all epoxy and water proofing systems on all types of surfaces

Coloured Recycled Glass Pty Ltd gives OCJ Solutions Pty Ltd (Mr Youseff Matei)
Full Exclusivity for the application of Coloured Recycled Glass products and materials supply in the Middle East.

Coloured Recycled Glass Pty Ltd

Director Mr Vincent Caddy

Signature of Director

OCJ Solutions Pty Ltd

Director Mr Youseff Matei

Signature of Director



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Quality Control
SAMPLE DESCRIPTION: Sample 1A – Safety Grip/CRG-70/2-3

FILE NO: 482/11

DATE TESTED: 5.3.11

DATE SAMPLED: Unknown
DATE RECEIVED: 4.2.11
LOCATION: Coloured Recycled
Glass
LAB. SAMPLE NO: 112657

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W8
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	80	75
	Sample mean friction value corrected for temperature after polishing.	63	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	63	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

V. Caddy, File, Ref: 5192.Rep



Approved Signatory

Date 8.3.11

Serial No.

93643

W Komsta

This document is issued in accordance with NATA's accreditation requirements:
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory
Number: 547



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Quality Control
SAMPLE DESCRIPTION: Sample 2A – Safety Grip/CRG-60/2-3

FILE NO: 482/11

DATE TESTED: 5.3.11

DATE SAMPLED: Unknown
DATE RECEIVED: 4.2.11
LOCATION: Coloured Recycled
Glass
LAB. SAMPLE NO: 112658

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W8
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	81	75
	Sample mean friction value corrected for temperature after polishing.	65	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	65	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

V. Caddy, File, Ref: 5192.Rep



ACCREDITED FOR
TECHNICAL
COMPETENCE

Approved Signatory

Date 8.3.11

Serial No.

93644

W Komsta

This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory
Number: 547



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Quality Control
SAMPLE DESCRIPTION: Sample 9 – Safety Grip/CRG-70/1-2

FILE NO: 482/11

DATE TESTED: 5.3.11

DATE SAMPLED: Unknown
DATE RECEIVED: 4.2.11
LOCATION: Coloured Recycled
Glass
LAB. SAMPLE NO: 112659

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W8
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	84	75
	Sample mean friction value corrected for temperature after polishing.	68	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	68	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

V. Caddy, File, Ref: 5192.Rep



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Quality Control
SAMPLE DESCRIPTION: Sample 10 – Safety Grip/CRG-60/1-2

FILE NO: 482/11

DATE TESTED: 5.3.11

DATE SAMPLED: Unknown
DATE RECEIVED: 4.2.11
LOCATION: Coloured Recycled
Glass
LAB. SAMPLE NO: 112660

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W8
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	86	75
	Sample mean friction value corrected for temperature after polishing.	70	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	70	-

The air temperature during the friction test was 23°C.

Sample submitted by client.

V. Caddy, File, Ref: 5192.Rep



Approved Signatory

Date 8.3.11

Serial No.

93646

W Komsta

This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory
Number: 547



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Safety Grip/CRG-70

FILE NO: 482/10

DATE TESTED: 16.12.10
CLIENT SAMPLE NO: Sample 1

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110463

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W153
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	82	75
	Sample mean friction value corrected for temperature after polishing.	65	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	65	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Safety Grip/CRG-60

FILE NO: 482/10

DATE TESTED: 16.12.10
CLIENT SAMPLE NO: Sample 2

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110464

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W153
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	82	75
	Sample mean friction value corrected for temperature after polishing.	69	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	69	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int

Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Coloured Recycled Glass 0.8mm – 2mm

FILE NO: 482/10

DATE TESTED: 16.12.10
CLIENT SAMPLE NO: Sample 3

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110465

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS1141.41

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W153
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	80	75
	Sample mean friction value corrected for temperature after polishing.	60	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	60	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Diamarundum

FILE NO: 482/10

DATE TESTED: 16.12.10
CLIENT SAMPLE NO: Sample 4

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110466

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W153
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	84	75
	Sample mean friction value corrected for temperature after polishing.	76	51
	Polished aggregate friction value (PAFV) for the test sample after polishing.	76	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Calcined Bauxite

FILE NO: 482/10

DATE TESTED: 20.12.10
CLIENT SAMPLE NO: Sample 5

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110467

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W154
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	105	75
	Sample mean friction value corrected for temperature after polishing.	82	54
	Polished aggregate friction value (PAFV) for the test sample after polishing.	79	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Glass Bauxite

FILE NO: 482/10

DATE TESTED: 20.12.10
CLIENT SAMPLE NO: Sample 6

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110468

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W154
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	90	75
	Sample mean friction value corrected for temperature after polishing.	67	54
	Polished aggregate friction value (PAFV) for the test sample after polishing.	64	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Safety Grip/CRG-50

FILE NO: 482/10

DATE TESTED: 20.12.10
CLIENT SAMPLE NO: Sample 7

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110469

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W154
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	87	75
	Sample mean friction value corrected for temperature after polishing.	66	54
	Polished aggregate friction value (PAFV) for the test sample after polishing.	63	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Test Report
POLISHED AGGREGATE FRICTION VALUE

CLIENT: Coloured Recycled Glass Pty Ltd
PROJECT: Testing of Crushed Glass for PAFV
SAMPLE DESCRIPTION: Coloured Recycled Glass 2mm – 3mm

FILE NO: 482/10

DATE TESTED: 20.12.10
CLIENT SAMPLE NO: Sample 8

DATE RECEIVED: 22.11.10
LOCATION: CRG
LAB. SAMPLE NO: 110470

Samples were prepared as per AS1141.41 and tested in a wet condition as per AS1141.42 prior to and after polishing. The sample were polished using the procedure of AS114.41.

A reference aggregate sample, "Panmure Basalt" is included with each testing run. This sample acts as a control on test performance and is used to standardise the sample results. After polishing, the samples were again tested in the wet condition according to AS1141.42.

Test Method	Test	Results for the Test Sample	Results for Panmure Reference Specimen PAN No. W154
AS1141.41/42	Sample mean friction value corrected for temperature before polishing.	88	75
	Sample mean friction value corrected for temperature after polishing.	63	54
	Polished aggregate friction value (PAFV) for the test sample after polishing.	60	-

The air temperature during the friction test was 23°C.

Sample submitted by client.
V. Caddy, File, Ref: 5872.Int



Totally Crystal Australia

3 Devon Court. Epping. Vic. 3076

Phone: 9408 5400

QUV TEST RESULTS

DATA :

Accelerated weathering provides exposed samples for comparison to unexposed control samples. Often several exposure times (such as 500, 1000, and 2000 hours) also will be compared to each other. Depending upon the performance requirements of concern, such a comparison may involve measurements of Haze, Transmission, Yellowness Index, Color Change, and/or physical properties such as Impact Strength.

EQUIPMENT USED FOR TEST :

Q-Panel QUV/se with Solar Eye irradiance controller
UVA-340 or UVB-313 lamps

**Please note that this test description is intentionally generic in nature and aimed at providing a descriptive summary to enhance test understanding. Due to copyright restrictions, we are not able to provide copies of standards. Standards can be obtained from www.astm.org, www.iso.ch/iso/en, www.sae.org or other appropriate standards authorities.

TEST RESULTS

Panel I.D.	Initial Reading			406 hours Weatherometer			954 hours Weatherometer			1250 hours Weatherometer			1635 hours Weatherometer		
	L*	a*	b*	L*	a*	b*	L*	a*	b*	L*	a*	b*	L*	a*	b*
A	25.1	0.8	-0.3	24.3	0.2	-0.5	24	0.6	-0.5	24.4	0.3	-0.3	23.3	-0.3	-0.4
B	25.5	0.4	-1.1	26.6	-0.2	-0.9	26.3	0	-0.9	26.3	0	-0.7	26.5	0	0.9
C	27.5	1.6	0.8	31.3	0.4	0.3	30.3	0.9	0.8	31	0.7	0.7	31.3	0.8	0.6
D	20.8	0.6	0.3	24.9	-0.3	-0.5	24.7	-0.4	0.2	25	-0.4	-0.4	24.6	-0.1	-0.3
E	34.9	0.8	-2.1	28.3	0.1	-0.9	28	0.4	0.2	38.5	0.2	-2.7	24.6	-0.1	-0.3
F	26.9	0.6	-1.1	27.4	-0.3	-1.0	28.9	-9.2	-0.8	27.6	0	0.8	27.0	0.1	-0.8
G	37.7	0.7	-1.9	30.1	-0.3	-1.5	29.5	0.1	-1.4	34.8	0	-2.0	33.0	-0.1	-2.0
H	26.7	0.4	-1.1	28.3	-0.4	-1.0	28.7	-0.3	-0.6	28.5	-0.3	0.7	28.1	-0.3	-0.7

Panel I.D	2079 Hours			2885 Hours		
	L*	a*	b*	L*	a*	b*
A	24.3	0.1	-0.2	23.8	-0.1	-0.2
B	26.7	-0.4	-0.8	26.4	-0.4	-0.7
C	29.8	0.3	1.0	30.7	1	0.8
D	24.0	-0.8	0.1	25.0	-0.8	0.0
E	32.4	-0.4	-1.9	31.2	-0.3	-1.7
F	27.7	0	-0.8	27.3	-0.1	-0.8
G	34.0	-0.6	-2.0	33.1	-0.1	-2.1
H	27	-0.5	-0.8	27.3	-0.4	-0.8

Summary:

Panels A to H were supplied pre-coated with various coloured coatings as applied by the customer. The test panels were positioned so that half of each panel is exposed to the QUV Weatherometer and half is not exposed. This allows a visual comparison to be made between the exposed and unexposed panels. There is no visible deterioration in the appearance of any of the panels under exposure compared to the unexposed sections.

NOTE: It is generally accepted in the industry that 1000 hours of QUV Testing is equivocal to around 7 years UV exposure.



Totally Crystal Australia

3 Devon Court, Epping, Vic. 3076

Phone: 9408 5400

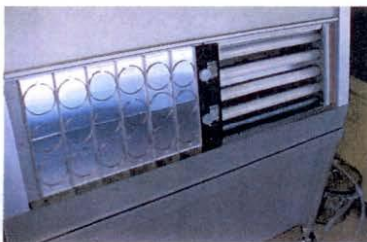
QUV TEST RESULTS

INTRODUCTION : Accelerated Weathering by QUV

ASTM D4329, D4587

ISO 4892 , SAE J2020

A2LA Accredited



SCOPE:

Accelerated weathering simulates damaging effects of long term outdoor exposure of materials and coatings by exposing test samples to varying conditions of the most aggressive components of weathering - ultraviolet radiation, moisture and heat. A QUV test chamber uses fluorescent lamps to provide a radiation spectrum centered in the ultraviolet wavelengths. Moisture is provided by forced condensation, and temperature is controlled by heaters.

No direct correlation can be made between accelerated weathering duration and actual outdoor exposure duration. However, performance comparisons under the controlled conditions of accelerated weathering can be compared to documented performance of materials and coatings that have experienced extended periods of end use exposure.

TEST PROCEDURE :

Up to 20 test samples are mounted in the QUV and subjected to a cycle of exposure to intense ultraviolet radiation followed by moisture exposure by condensation. Various cycles are defined depending upon the intended end use application - for example, a typical cycle for automotive exterior applications would be 8 hours UV exposure at 70° C followed by 4 hours of condensation at 50° C. These cycles would be continued for extended periods of time - up to thousands of hours - simulating even longer periods of time in the real world.

SPECIMEN SIZE :

Typically, flat plaques or disks are used for accelerated weathering studies. The standard sample holders can hold one sample 3 x 12 inches (75 x 300 mm) or two samples 3 x 6 in (75 x 150 mm).

TECHNICAL DATA SHEET

Product	OMNIGRIP CST	
Surfacing Type	Two Component, Cross Linking Epoxy Resin + Colored Aggregate Dressing	
Resin Components	EP176: - Part A Epoxy Compound	EP175: - Part B Epoxy Hardener
Additives	Filler / Extender	Specialty Pigments
Aggregate Type	Synthite - Synthetic Colored Aggregates	
Colour(s)	Available in a variety of safety and designer colors	
Product Description	OMNIGRIP CST is a skid resistant, colored surface traffic delineation and management treatment for highways, bridges and vehicle trafficked asphalt and concrete pavements.  Typically applied to and suitable for: - • Bus & Cycle Lanes • Pedestrian & School Crossings • School & Speed Zone Identification • • Bus & Tram Stops • Railway Crossings • LATM Schemes	
Theoretical Coverage	Mixed Resin: - 1.5 – 1.7 Kg/m ² (Subject to Surface Texture Depth)	Aggregate Dressing: 5.5 to 6.0 Kg/m ² Allowing for Excess Recovery after Sweeping
Resin Mix Ratio	1: 1 by weight (Part A Resin: Part B Hardener)	
Additives	Pigment at 1% w/w	Extender Up to 30% w/w
Gel Time at 25°C	Typically, 3 Hours— (150 g sample)	
Pot Life at 25°C	Typically, 10 Minutes — 20 Kg Full Kit	
Setting Time at 25°C	Initial Set Ready to Remove Excess Aggregate: Normally - 3 Hours	

Asphalt Surface Preparation	Generally, asphalt surfaces do not require priming. However, it is imperative that the substrate is dry and clean from all contaminants. Asphalt pavements should be vigorously brushed or treated with compressed air to remove dust and loose aggregate. Excessive surface contamination such as oil and grease should be removed using a suitable detergent, washed clean with fresh water, and dried prior to application. New asphalt surfaces should be trafficked for 2 weeks prior to application however new or recently placed asphalt is in most instances very porous. In consideration it is good practice to consider the application of an initial skim coat of resin to bind the pores prior to the trafficking layer.
Concrete Surface Preparation	New concrete should be water cured for at least 28 days, well compacted and finished, preferably by power floating or troweling to give a dense smooth finish. Old concrete must be structurally sound with spalled areas repaired. Loose and deteriorated areas shall be replaced, and any existing coatings must be removed. The substrate must have a moisture content no greater than 5% by volume and the surface must be clean, free from dust, oil, grease, or other contaminants that may impair the adhesion of the applied resin. The surface laitance must be removed by mechanical abrasion such as captive shot blasting, scarification, or diamond grinding. Deteriorated and porous concrete may require the application of a prime coat by roller or flat squeegee of EP 176/175 mixed resin thinned as per manufacturers instruction.
Pre-Application Set Out	All road markings not requiring removal, including all road studs, shall be suitably masked with cloth tape prior to surface binder application. All surface expansion joints & seams should at the discretion of the site engineer be suitably masked ensuring product does not bridge these areas as reflective cracking is a significant possibility. All exterior-defining lines shall be masked to ensure a clean crisp transition from existing surface to the OMNIGRIP CST surface
	Correct identification of materials is important and prior to use installers should clearly identify resin components and any associated color pigment additives. The Epoxy Resin Hardener (EP 175 - Part B) should be added to the Epoxy Resin (EP 176 - Part A) at the correct mixing ratio using a slow speed, high torque drill with mixing paddle adding the selected pigment coloring and filler extender as required.

Materials Processing & Installation Procedure

Mixing of materials should be undertaken for 90 – 120 seconds to obtain a homogenous mix. Once mixed the resin should be immediately applied & spread evenly using a serrated squeegee or notched trowel at an average rate of 1.5 – 1.7 Kg/m².

Resin should be allowed to self-level; however, the use of a 20 mm fine nap roller should be used to back roll and level the resin ensuring a smooth and ripple free surface.

Once spread on the surface the resin should be allowed to level and then should be dressed to excess the chosen aggregate. The applied resin should receive the aggregate dressing within 10 - 15 minutes of application and the aggregate should be broadcast allowing the dressing to "fall" onto the resin to avoid any potential rippling in the finished surface.

Steep gradients may require the addition of a thixotrope, and the resin should be left open, if possible, prior to casting of the chosen aggregate dressing.

Installers should ensure that the resin is blinded to refusal and thus fully impregnated with aggregate at an average rate of 6 - 7 Kg/m² ensuring no wet resin is left exposed and a 100% aggregate coverage.

Surfacing should be then left to harden upon which all excess aggregate shall be removed by Vacuum Sweeper or equivalent.

Excess aggregate, if kept clean and dry will be suitable for re use.

Climatic Considerations

OMNIGRIP CST must not be applied to wet pavements under any circumstances and immediate suspension of application should be considered:

- During periods of dew, drizzle, or rain
- If the surface temperature exceeds 60° C
- If the surface temperature drops below 10° C and is in decline.
- If the surface moisture content of concrete exceeds 5%
- If the relative humidity exceeds 85%

Component Properties at 25°C		Part A	Part B
	Appearance	Clear Liquid	Brown Liquid
	Viscosity @ 25° C	15 Poise	40 Poise
	Specific Gravity	1.00 –1.20	0.95 –1.00
	<i>Viscosity and SG are subject to batch variation based upon raw material grades</i>		
	Shore Hardness ASTM D2240	≥ 40 °D	
	Tensile Strength ASTM D638-03	≥ 11.0 N/mm ²	

Cured Film Properties (7 Days @ 20° C)	Elongation at Break ASTM D638-03	≥ 35 %	
	Average Density	1.1 g/ml	
	Tensile Adhesion Asphalt - TRL 176 Appendix J	Stress at -10+/- 2°C	> 1.0 (Nmm ⁻²)
		Stress at 20+/- 2°C	> 0.5 (Nmm ⁻²)
Packaging	Pre-Weighed Combined Kits 20 Kg / Bulk 1000 Kg IBC's		
Storage	In sealed containers at 5-30°C		
Shelf Life	24 Months minimum		
Health and Safety	Before using this product refer to the Material Safety Data Sheets.		
Specification Compliances	Vic Roads Colored Surfacing Specification Section 431 NSW RMS Colored Surfacing Specification R110 Main Roads QLD - SPSA Cycleway and Busway Colored Specification Main Roads WA - Colored Surface Treatments		
Additional Information	Installers should be aware that the application rates will vary with surface texture depth and undulations in the pavement. To facilitate improved decanting, mixing and curing resin components they may be warmed which will lower viscosity. Care should be taken that the material is heated evenly to an average temperature of between 35° C and 40° C and not heated to a temperature in excess of 60° C. <i>Special Note:</i> Resin curing reactions are exothermic so the higher the material temperature at the time of mixing the shorter the pot life will become, and the quicker the material will cure.		
Issue No/Date	Version 9.0 Update 2018		



www.cmit.csiro.au

**CSIRO MANUFACTURING
& INFRASTRUCTURE TECHNOLOGY**

Graham Road, Highett, Victoria 3190, Australia

Postal Address:

PO Box 56, Highett, Victoria 3190, Australia

Telephone: 61 3 9252 6000

Facsimile: 61 3 9252 6244

**Xenon Arc Weathering of Synthetic
Road Surface Specimens**

Report Number: CPD 06008

Client: Omnicrete Pty. Ltd.
PO Box 79
Eltham
VIC 3095

Authorized: Paul Sadler --

Date: 27 July 2006



CSIRO

www.cmit.csiro.au

CSIRO MANUFACTURING
& INFRASTRUCTURE TECHNOLOGY

Graham Road, Highett, Victoria 3190, Australia

Postal Address:

PO Box 56, Highett, Victoria 3190, Australia

Telephone: 61 3 9252 6000

Facsimile: 61 3 9252 6244

Introduction

Omnicare Pty. Ltd. provided 4 Synthetic Road surface materials for Xenon Arc Exposure.

Materials were exposed for 1000 hours in accordance with SAEJ1960-04. Change in appearance was assessed by comparing the exposed specimens with their controls.

Accelerated Weathering

Standard: SAE J1960-04 - Accelerated exposure of Automotive Exterior Materials Using a Controlled Irradiance Water Cooled Xenon Arc Apparatus.

Exposure device: Atlas Ci65 Xenon Arc Weatherometer

Light source: Xenon arc, 6500 W

Filters used: Quartz inner
Borosilicate outer

Spray water: Deionized

Water Quality: Conductivity < 5 $\mu\text{S}/\text{cm}$
Total Dissolved Solids < 0.5 ppm
Silica < 0.1 ppm

Total exposure time: 1000 hrs.

Specimen rotation: No rotation necessary as all specimens were on the center rack

Operating conditions:



	Dark Cycle	Light Cycle
irradiance (W/m ² /nm @ 340nm)	-	0.55 ± 0.01
Black Panel Temperature (°C)	38 ± 2	70 ± 2
Dry Bulb Temperature (°C)	38 ± 2	47 ± 2
Relative Humidity (%)	95 ± 5	50 ± 5



CSIRO

www.cmit.csiro.au

CSIRO MANUFACTURING
& INFRASTRUCTURE TECHNOLOGY

Graham Road, Highett, Victoria 3190, Australia

Postal Address

PO Box 56, Highett, Victoria 3190, Australia

Telephone 61 3 9252 6000

Facsimile 61 3 9252 6244

Exposure cycle: 60 minutes dark, front and back water sprays
40 minutes light, no water sprays
20 minutes light, front water sprays
60 minutes light, no water sprays

Results

Exposure resulted in slight darkening and gloss loss for all materials. See Figures 1-2.

Color change was assessed with an AATCC grey scale for evaluating change in color (ISO 105-A02). The scale ranges from 5 (no change) to 0 (large change). Results are shown in Tables 1.

Table 1. Color Change Assessment

Material Description	Grey Scale Change
Red, control	4
Red, test	4
Green, control	4-5
Green, test	4

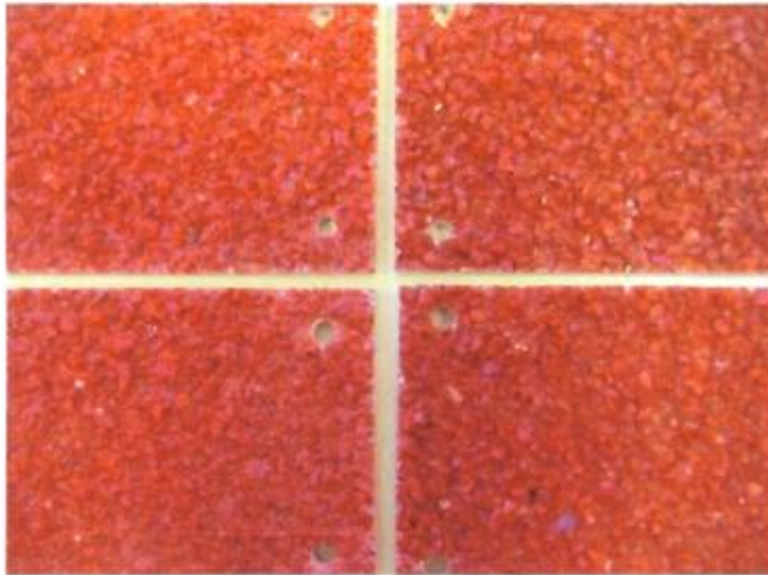


Figure 1. Unexposed left, exposed right, control top, test bottom

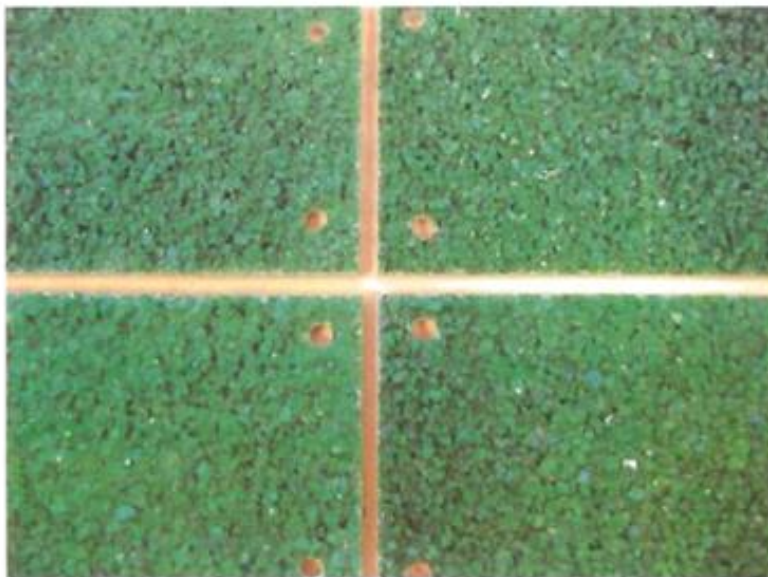


Figure 2. Unexposed left, exposed right, control top, test bottom

synthase® - The Benchmark for Coloured Surface Treatments

Background

Modified epoxy resin binders are available un-pigmented or pigmented and can be dressed in a variety of collections depending on the performance and visual effect required. Most colored surface treatments are either natural-colored aggregates or the aggregate is colour coated. The problem with this form of colored surface treatment is that the final surface colour reverts to the natural colour of the aggregate under traffic.

Synthite® is a 100% recycled, Australian developed colorless synthetic aggregate. Testing was carried out to determine the retention and durability of colour after simulated traffic wear tests and to compare its performance with existing products.



1- 3 mm Synthite® – Standard Traffic Colors Red, Green, Orange, Yellow & Blue

In June 2004 Babbie laboratory evaluation for simulated wear, colour retention, Polished Stone Value and Aggregate Abrasion Value was undertaken at the bequest of Omnicrete by Prismo Limited to evaluate the Synthite® aggregate for use as an on road colored surface treatment. As a comparison the Synthite® was compared against Calcined Bauxite this material has been the standard artificially colored aggregate of late and tests were carried out to determine the durability and retention of colour after simulated traffic wear tests and to compare performance with existing products.

Test methods: Test methods followed the new draft Guidelines document being developed for colour surfacing products by the BBA HAPAS Technical Committee SG10. The Scuffing test follows the TRL Report 176 method.

Scuffing tests. The samples all met the requirement of the test method for Scuffing, Texture Depth and Erosion Index. There was no evidence of exposure of the asphalt substrate for the Synthite® treated sample. There was some evidence of exposure of the asphalt substrate for the standard coated aggregates.

TRL 176 Scuffing - Synthite

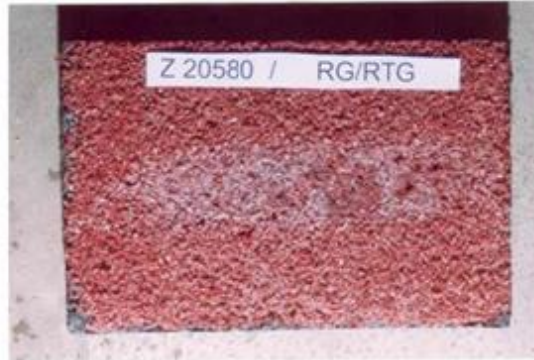
Test Method: Determination of scuffing, TRL 176 Appendix G
Certificate No Z20574 /2

Page 8 of 12

Photograph of Specimen No Z20580 n/a

Client Reference RG/RTG Red

After scuffing, 500 wheel passes, standard condition at 45°C



Description of visual condition

TRL Report 176

Appendix F

No faults or abnormalities were observed

TRL 176 Scuffing – Coloured Bauxite

Test Method: Determination of scuffing, TRL 176 Appendix G
Certificate No Z20574 /2

Page 8 of 12

Photograph of Specimen No Z20578 n/a

Client Reference RPB/RTG Red

After scuffing, 500 wheel passes, standard condition at 45°C



Description of visual condition

TRL Report 176

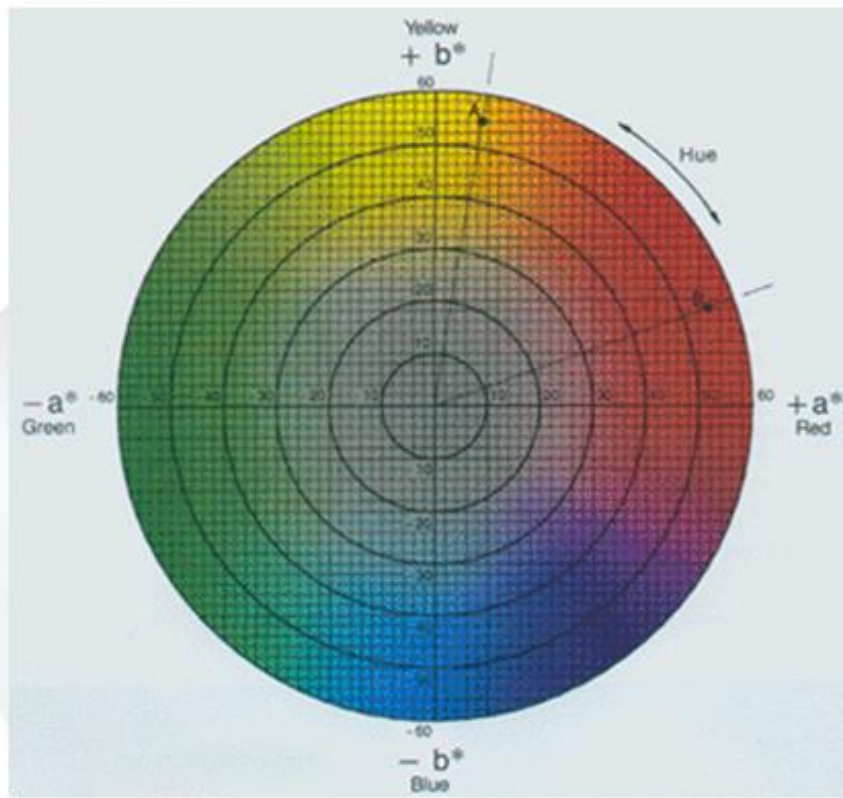
Appendix F

No faults or abnormalities were observed

Page 2

Colour before and after Scuffing / AAV wear tests. Spectrophotometer colour measurements were taken before and after each test. By using colour co-ordinates to express the overall colour change in terms of "the greater the value the bigger the colour change". The non-subjective numerical values were evaluated using CIELAB 1976 method where both intensity and colour change can be measured.

Figure 1: CIELAB 1976 Colour Change Chart



Observations / Results

Colour was assessed before and after wear testing including a visual assessment of the effects of wear.

Specimens tested included:

- A - Red Synthite® on red pigmented epoxy
- B - Red coated bauxite on un-pigmented epoxy
- C - Red coated bauxite on red pigmented epoxy

Table 1: A summary of the results is shown in the following table:

Property	A	B	C	Standard
Scuffing				
Initial texture	2.4	2.4	2.5	> 1.4
Final texture	1.7	1.7	1.7	> 1.2
Erosion Index	0.0	0.0	0.0	< 3
Loss of texture depth	28.3%	29.3%	29.9%	
Colour				
Original L	29.72	35.65	34.46	
ΔE	21.6	18.66	21.24	
Hue	10.95	9.16	10.32	
After Scuffing L	36.78	39.69	42.86	
ΔE	13.58	15.51	17.07	
Hue	6.64	4.95	5.95	
After AAV L	33.27	31.23	33.93	
ΔE	18.23	23.68	16.84	
Hue	9.67	12.79	9.6	
ΔE Scuffing	11.5	6.6	10.3	
ΔE AAV	5.1	7.6	4.5	
Comment	Slight surface abrasion. Colour is slightly lighter after abrasion (Restored when wetted). Good texture	Some surface abrasion. Colour is lighter and some exposure of buff bauxite through coating wear is apparent	Surface abrasion and some exposure of substrate. Colour is slightly lighter and some exposure of the buff colored bauxite through coating is apparent	

The test results indicate:

- Changes in Luminance value which gives an indication of change in brightness of the surface. All samples showed some lightening of appearance. However overall, the changes were relatively small.
- Comparative ΔE values which are based on a colour difference scale and can provide an indication of overall colour change of a surface. The results show that the Scuffing test produces a greater colour change in the surface of the aggregate compared to the AAV test. At a range of 6 to 12 the differences are significant but moderate in value.
- Change in Hue (colour of the surface) which is indicated by the 'a' and 'b' scales reduction in 'a' represents a move to less red more green appearance, where as a reduction in 'b' represents a move to less yellow and more blue in colour. The figures for before and after scuffing show that the red colour has been retained. There is a small shift in the +a, +b sector to less strong red / yellow colour.

It was noted that the coated bauxite samples showed some wear of the coating exposing some of the buff-colored surface underneath on the other hand the Synthite® product although showing slight surface wear did not give the differential colour appearance of an exposed aggregate surface.

Evaluation of Polished Stone Value

Testing of the aggregates for Polished Stone Value (PSV) and Aggregate Abrasion Value (AAV) indicated that the Synthite[®] aggregate produced a consistent level of PSV and AAV over a number of tests.

Table 2: Polished Stone Value / Aggregate Abrasion Value test results

Property	Method	Synthite [®]	Synthite [®] Standard	Calcined Bauxite	Calcined Bauxite Standard
PSV	BS 812 Pt 114	62	≥ 60	75	≥ 70
AAV	BS / EN 1097 - 8	9.0	≤ 10	2.7	≤ 5
Density		2.6		3.6	

Conclusions

Synthite[®] all met the requirements of the test methods and provides for excellent colour retention.

All scuffed areas showed a slightly lighter red colour. All products remained red in colour after the Scuffing test, however unlike the bauxite Synthite[®] did not show any aggregate substrate grinning through the red coating after scuffing which showed some exposure of the buff bauxite colour.

The Synthite[®] aggregate performed well in the Scuffing and Aggregate Abrasion tests and showed good resistance to colour change.

The Synthite[®] produced a Polished Stone Value (PSV) at a similar level to an Australian high PSV natural aggregate indicating that the aggregate is suitable for use as a bus or tram, cycle, or pedestrian surfacing aggregate as it will not produce a great difference in the surface friction of the specified surface and the normal trafficked road surface. The Aggregate Abrasion Value also indicates that there will be minimal loss of surface texture with the use of Synthite[®] which will ensure maintenance of the surface macrotexture.

Summary

Synthite[®] is a new colored aggregate supplied by Omnicrete for use with epoxy road surfacing compounds where a colored surfacing is required. Samples were subjected to simulated wear and abrasion tests to test the durability of the surfacing material and the retention of colour under these conditions.

Tests were carried out by an independent laboratory. The results show that the Synthite[®] product performed well in the standard durability test (Scuffing Test) and the colour of the surfacing aggregate was retained after the Scuffing and wear tests. Subsequent PSV and AAV testing indicated that the material is a suitable aggregate for use on the road as part of the Omnicrete product range and provides for better visual colour retention than other tested materials.

Contact Details

OCJ Groups Pty Ltd

1395 Sydney Rd, Fawkner VIC 3060, Australia

Email: info@ocjgroups.com.au

Website: <https://www.ocjgroups.com.au>

JOE MATIE: +61 422 606 369

SHANT SAHAKIAN: +61 421 132 448

MARTIN SABAH: +61 491 600 954