Architectural Testing

PERFORMANCE EVALUATION TEST REPORT

Rendered to:

PCT GLOBAL PTY LTD

PRODUCTS: DFI Clear-Fusion Pro, Diamon-Fusion, ClearShield, EnduroShield, Nanokote, Vitroglaze, Bohle BrightGuard
TYPE: Glass Coatings

Report No: C3226.02-106-31
Report Date: 12/10/12
Test Record Retention Date: 12/10/16

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PERFORMANCE EVALUATION TEST REPORT

Rendered to:

PCT GLOBAL PTY LTD
5/21 Bearing Road
Seven Hills, NSW 2147

Report No:	C3226.02-106-31
Testing Started:	10/15/12
Testing Completed:	11/27/12
Report Date:	12/10/12
Test Record Retention Date:	12/10/16

Products: DFI Clear-Fusion Pro, Diamon-Fusion, ClearShield, EnduroShield, Nanokote, Vitroglaze, Bohle BrightGuard

Type: Glass Coatings

Project Summary: Architectural Testing, Inc. was contracted by PCT Global Pty Ltd. to provide competitive testing services for glass coatings. This report details the procedures employed and results of these evaluations.

Referenced Standards:

ASTM D 2486-06 (Reapproved 2012), *Standard Test Method for Scrub Resistance of Wall Paints*

ASTM C 813-90 (Reapproved 2009), *Standard Test Method for Hydrophobic Contamination on Glass by Contact Angle Measurement*

EnduroShield, *Abrasion Test Method No 17, Nov 2012, Version 1*

Test Materials: Testing was performed on materials which were provided by PCT Global Pty Ltd. in test-ready condition, with the coating product indicated on the non-coated surface of each specimen. Photographs of test specimens are located in Appendix A.

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Test Procedure: Before conducting the abrasion testing fifteen water contact angle measurements to measure hydrophobicity were taken at the midline across the length of each specimen at 2cm (0.8 in) intervals in accordance with the practices detailed in ASTM C 813 with a Ramé-Hart Model 50-00 Manual Goniometer (003695). This process was then replicated with Dodecane to measure oleophobicity. Each sample was subjected to 1000 abrasion cycles of a Pacific Scientific, Abrasion Tester (Y000189) with a damp kitchen sponge with 0.5 gm of cream cleanser (Jif) applied evenly down the midline of the sponge with contact angle measurements for hydrophobicity taken after every 250 abrasion cycles. One cycle is equivalent to one up and down stroke. Upon completion of the 1000 abrasion cycles additional contact angle measurements with Dodecane to measure oleophobicity were taken for comparison purposes.

Test Results: The results obtained are recorded in the following table.

Contact Angle Evaluation - ASTM C 813
Scrub Resistance - ASTM D 2486

Product ID	Average Contact Angle Measurements (°)						
	Water (Hydrophobicity)	Dodecane (Oleophobicity)	Water (Hydrophobicity)				Dodecane (Oleophobicity)
	Initial	Initial	250 cycles	500 cycles	750 cycles	1000 cycles	1000 Cycles
DFI Clear-Fusion Pro	97.0	23.5	76.9	52.8	31.9	33.5	3.2
Diamon-Fusion [1]	92.6	25.6	81.7	60.1	32.5	32.3	4.8
ClearShield	95.5	32.1	78.6	51.4	38.9	32.6	7.2
EnduroShield [2]	101.8	62.6	102.6	99.1	96.3	83.2	45.6
Nanokote	101.4	54.3	93.2	88.0	62.8	57.5	27.4
Vitroglaze [3]	90.4	25.3	32.7	27.6	28.8	29.8	2.0
Bohle BriteGuard	61.5	21.8	43.5	32.4	26.4	31.0	3.5

[1] CVD Chamber application method

[2] Professional strength product

[3] Vitroglaze has two products. One for internal use only and one for both internal and external use. The product supplied was for both internal and external use.

Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period.

Results obtained are tested values and were secured by using the designated tested methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:



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KAG:kag/nlh

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A - Photographs (4)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	12/10/12	N/A	Original report issue.

APPENDIX A

Photographs



Photo No. 1
Dodecane for Oleophobicity Contact Angle



Photo No. 2
Cream Cleanser (Jif) for Scrub Resistance



Photo No. 3
Sponge Preparation for Scrub Resistance

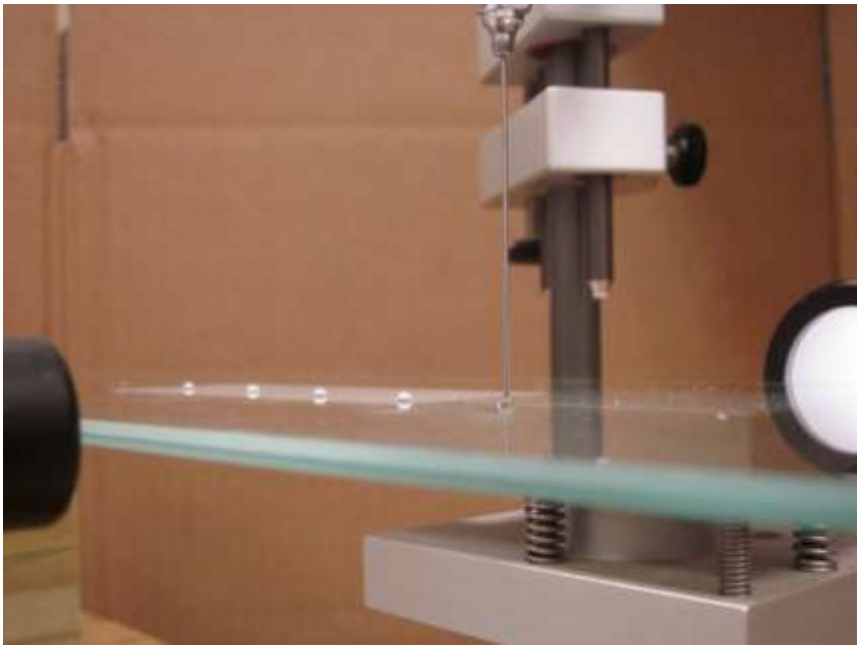


Photo No. 4
Contact Angle Measurement Detail

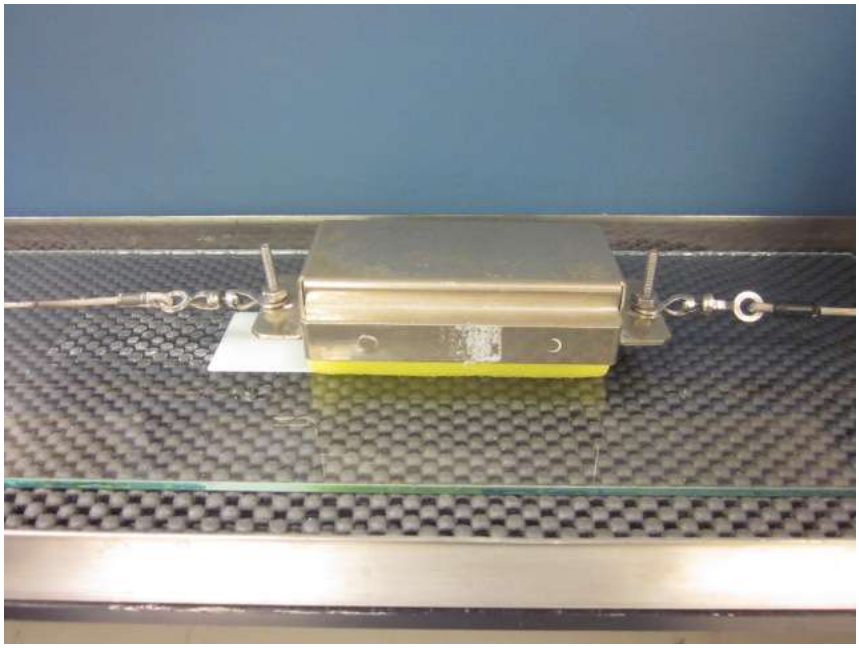


Photo No. 5
Typical Test Setup for Scrub Resistance on the Abrasion Tester

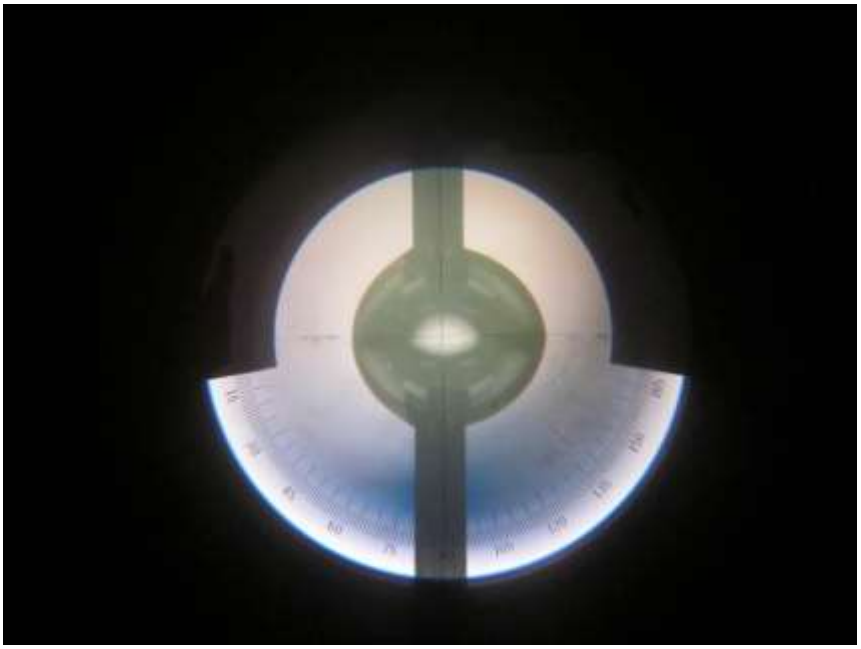


Photo No. 6
Typical Hydrophobicity Contact Angle Detail

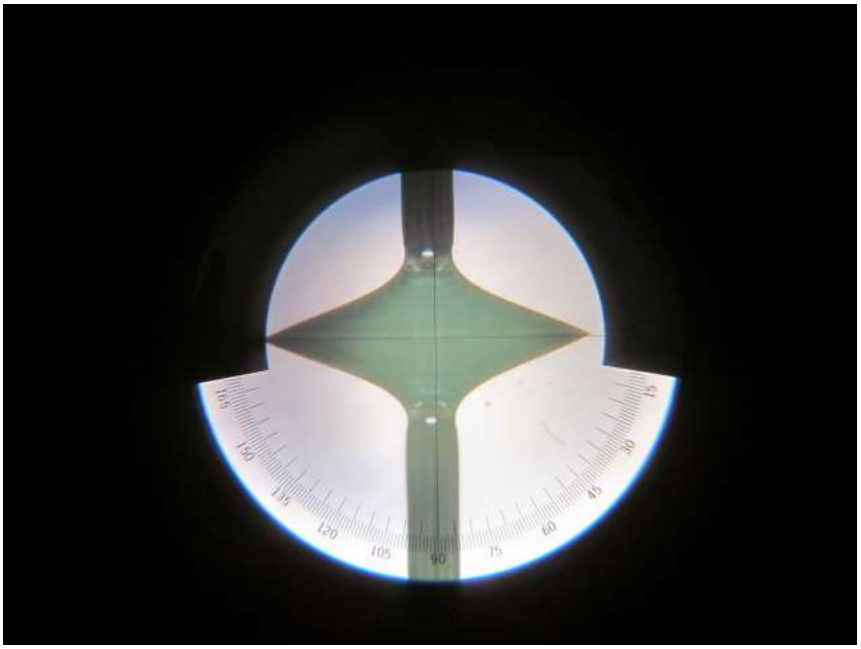


Photo No. 7
Typical Oleophobicity Contact Angle Detail