CORIAN®
SOLID SURFACE

COLOR FASTNESS AND EXTERIOR USE OF CORIAN® SOLID SURFACE SHEET

INTRODUCTION

This bulletin provides an overview of color performance considerations when deciding if Corian® Solid Surface sheet colors are appropriate for an exterior application. Corian® Solid Surface sheet color recommendations are based on testing performed outdoors in Florida. Preliminary assessments of new colors are made based on accelerated Atlas Ci4000 Weather-Ometer® testing performed in accordance with ASTM G155 and Florida exposure testing of comparable Corian® Solid Surface colors. The Global Corian® Solid Surface Color Portfolio contains colors that may be special order by region.

OVERVIEW

Color stability is often a primary concern when evaluating a material for exterior use, however there are other performance factors that should also be considered. Many colors of Corian® Solid Surface exhibit good color stability. All colors have low moisture absorption and resistance to stains, environmental pollutants, detergents, humidity and freeze-thaw conditions. Design flexibility, ease of fabrication, seamless appearance, thermoformability and durability make Corian® Solid Surface a versatile material. Corian® Solid Surface installations can be easily cleaned and/or sanded to restore their original appearance. Even graffiti can be removed through standard pressure washing with baking soda based cleaning agents. These performance factors combined make Corian® Solid Surface sheets an excellent choice for exterior applications.

Individual Corian® Solid Surface sheet colors change differently upon prolonged exposure to outdoor weather conditions and may exhibit color shifts which can be renewed with cleaning and/or sanding. This change is more evident in saturated, chromatic and dark colors and least evident in whites, lights and many of the earth tones. Ultimately, it is up to the end user to determine if these characteristics are acceptable for the desired application. Corian® Solid Surface sheets have been tested according to industry standards that are used in part to help determine product suitability for exterior use.

TESTING METHODS

Florida outdoor exposure testing was performed in accordance with ASTM G7. Florida exposures are accelerated as one year of Florida sunshine can equate to several years of weathering elsewhere. Corian® Solid Surface panels were exposed facing south at 45° from the horizontal for a two-year period. In some cases, preliminary color assessments are made based on accelerated Weather-Ometer® testing performed in accordance with ASTM G155 and Florida exposure testing of comparable Corian® Solid Surface colors.

Accelerated Weather-Ometer® testing artificially reproduces and accelerates weathering effects that occur from exposure to direct sunlight and rain or dew by using exposure to a xenon arc lamp and water. Color changes for both tests are measured before and after the exposure period. All exposure testing protocols are performed on nominal 12 mm ($^1/_2$") gauge product.

Corian® Solid Surface sheet colors are grouped into three performance categories. These categories are based on a projected 10-year color change performance. Color changes are measured in ΔE^*_{94} units. ΔE^*_{94} (the total color difference) and its calculation are defined in ASTM D2244. Performance categories apply only to Corian® Solid Surface sheet.

Group 1 – Color change of less than or equal to 5 ΔE^*_{94} units in 10 years – good choices for exterior applications.

Group 2 – Color change of 5 to 15 ΔE^*_{94} units in 10 years – good choices if some color change is not objectionable.

Group 3 – Color change of greater than 15 ΔE^*_{94} units in 10 years – potential choices if greater color change is acceptable.

The Global Portfolio contains colors that may not be in the standard offering in some regions. These colors have longer lead times and may have minimum order quantities.

GROUP 1

COLOR	COLOR	COLOR
Abalone	Doeskin	Rain Cloud
Antarctica	Domino Terrazzo	Rice Paper
Arrowroot	Dove	River Pearl
Ash Aggregate	Dune Prima	Sahara
Ash Concrete	Ecru	Salt
Aspen	Everest	Savannah
Aurora	Glacier White	Sepia Linear
Bisque	Golden Onyx	Serene Sage
Bone	Gray Onyx	Silver Linear
Cameo White	Hazelnut	Stratus
Canvas	Jade Onyx	Summit White
Cirrus White	Keystone	Vanilla
Clam Shell	Light Ash	Venaro White
Concrete	Limestone Prima	Weathered Aggregate
Cool Gray	Linen	Whipped Cream
Deep Anthracite	Modern White	White Jasmine
Deep Night Sky	Neutral Aggregate	White Onyx
Deep Nocturne	Neutral Concrete	Willow
Deep Titanium	Pebble Terrazzo	Windswept Prima
Designer White	Raffia	

Glacier White and Designer White display exceptional color fastness properties. The projected ΔE^*_{94} is less than 2 units over 10 years.

GROUP 2

COLOR	COLOR	COLOR
Arctic Ice	Deep Espresso	Pearl Gray
Athena Gray	Deep Mink	Platinum
Basalt Terrazzo	Deep Sable	Rosemary
Beech Nuwood	Deep Space	Sagebrush
Blooming Green	Deep Storm	Sand Storm
Carbon Aggregate	Elegant Gray	Sandstone
Carbon Concrete	Evening Prima	Sienna Brown
Citrus Orange	Glacier Ice	Silver Birch
Cocoa Prima	Imperial Yellow	Silver Gray
Cosmos Prima	Juniper	Silverite
Deep Bedrock	Lava Rock	Sorrel
Deep Black Quartz	Matterhorn	Weathered Concrete
Deep Caviar	Mint Ice	Whisper
Deep Cloud	Natural Gray	

GROUP 3

COLOR	COLOR	COLOR
Canyon	Nimbus Prima	Sparkling White
Cocoa Brown	Sandalwood	Verdant
Hot	Seagrass	Witch Hazel
Laguna	Silt	
Mahogany Nuwood	Smoke Drift Prima	

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REFERENCE STANDARDS

AMA 2604, Voluntary Specification, Performance Requirements and Test Procedures for High Performing Organic Coatings on Aluminium Extrusions and Panels.

ASTM B117, Standard Practice for Operating Salt Spray (Fog) Apparatus.

ASTM C666/C666M, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.

ASTM C756, Standard Test Method for Cleanability of Surface Finishes.

ASTM D1308, Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.

ASTM D2244, Standard Practice for Calculation of Colour Tolerances and Colour Differences from Instrumentally Measured Colour Coordinates.

ASTM D2247, Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

ASTM D2248, Standard Practice for Detergent Resistance of Organic Finishes.

ASTM D570, Standard Test Method for Water Absorption of Plastics.

ASTM G7, Standard Practice for Atmospheric Environmental Exposure Testing of Non-metallic Materials.

ASTM G21, Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

ASTM G85, Standard Practice for Modified Salt Spray (Fog) Testing.

ASTM G155, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

ISO 14021:2016, Environmental Labels and Declaration. Self-declared Environmental Claims (Type II Environmental Labelling).

ISFA-2-01 (2013), Classification and Standards for Solid Surfacing Material.

ISO 19712-2:2007, Plastics – Decorative solid surfacing materials – Part 2: Determination of properties – Sheet goods.

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