



Corian®

Colourfastness & exterior benchtop use of Corian® solid surface

INTRODUCTION

This bulletin provides an overview of one potential performance consideration when deciding if DuPont™ Corian® solid surface is appropriate for an exterior benchtop application. Corian® colour recommendations are based on testing performed at the Axalta Coating Systems Florida Weathering Laboratory. Preliminary assessments of new colours are made based on accelerated Weather-Ometer® testing performed in accordance with ASTM G155 and Florida exposure testing of comparable Corian® colours.

OVERVIEW

Colour 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 colours of Corian® solid surface exhibit good colour stability. All colours 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® installations can be easily cleaned and/or sanded to restore their original appearances. Even graffiti can be removed through standard pressure washing with baking soda-based cleaning agents. All of these performance factors combined make Corian® solid surface an excellent choice for exterior applications.

Individual Corian® colours change differently upon prolonged exposure to outdoor weather conditions and may exhibit colour shifts which can be renewed with cleaning and/or sanding. This change is more evident in saturated, chromatic and dark colours 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 has been tested according to industry standards that are used in part to help determine a product's suitability for exterior use.

TESTING METHODS

Testing at the Axalta Coating Systems Florida Weathering Laboratory was performed in accordance with ASTM G7. Corian® panels were exposed facing south at 45° from the horizontal for a two year period. In some cases, preliminary colour assessments are made based on accelerated Weather-Ometer® testing performed in accordance with ASTM G155 and Florida exposure testing of comparable Corian® colours.

Accelerated Weather-Ometer® testing artificially reproduces and accelerates weathering effects that occur from exposure to direct sunlight and rain or dew using exposure to a xenon arc lamp and water. Colour changes for both tests are measured before and after the exposure period. All exposure testing protocols are performed on nominal half-inch gauge product. Corian® colours are grouped into three performance categories. These categories are based on projected 10-year colour change performance. Colour changes are measured in ΔE_{ab} units. ΔE_{ab} (the total colour difference) and its calculation are defined in ASTM D2244.

Group 1 - Colour change of less than or equal to 5 ΔE_{ab} units in 10 years - good choices for exterior applications.

Group 2 - Colour change of 5 to 15 ΔE_{ab} units in 10 years - good choices if some colour change is not objectionable.

Group 3 - Colour change of greater than 15 ΔE_{ab} units in 10 years - potential choices if greater colour change is acceptable.

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GROUP 1

Antarctica	Elegant Grey
Arrowroot	Everest
Ash Concrete	Fossil
Basil	Glacier Ice*
Bisque	Glacier White
Cameo White	Grey Onyx
Canvas	Light Ash
Cirrus White	Linen
Clam Shell	Oyster
Clay	Neutral Concrete
Concrete	Rain Cloud
Cosmos Prima	Rice Paper
Deep Anthracite	Savannah
Deep Night Sky	Silver Grey*
Deep Nocturne	Vanilla
Designer White	Venaro White
Dove	Whitecap
	White Onyx

GROUP 2

Carbon Concrete	
Citrus Orange	Pearl Grey
Deep Black Quartz	Platinum
Deep Cloud	Sage Brush
Deep Titanium*	Sand Storm
Dune Prima	Silver Birch
Elegant Grey	Sorrel
Imperial Yellow	Tumbleweed
Lava Rock	Weathered Concrete
Natural Grey	Whisper
	White Jasmine

GROUP 3

Earth	Pearl
Grape Green	Silver Grey
Gravel	Smoke Drift Prima
Hot	Witch Hazel

Glacier White and Designer White display exceptional colourfastness properties. The projected ΔE_{ab} is less than 2 units over 10 years.

DuPont™ Corian® solid surface materials used in an outdoor application are covered under the DuPont™ Corian® outdoor benchtop 10-Year Limited Warranty.

REFERENCE STANDARDS

- AAMA 2604, Voluntary Specification, Performance Requirements and Test Procedures for High Performing Organic Coatings on Aluminum 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 Nonmetallic 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 14021:2001, Environmental Labels and Declaration. Self-declared Environmental Claims (Type II Environmental Labeling)
- ISSFA-2-01 (2007), 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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*Preliminary colour assessment based on accelerated Weather-Ometer® testing performed in accordance with ASTM G155 and Florida exposure testing of comparable Corian® colours.



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