

Corian® Solid Surface



1. Product name

DuPont™ Corian® Solid Surface

2. Manufacturer

E. I. du Pont de Nemours and Company Inc. (Surfaces division)

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3. Product description

Basic use

DuPont™ Corian® is an advanced composite product used as a decorative material in a variety of residential and commercial applications. Corian® offers design versatility, functionality and durability. Supplied in sheets and shapes, it can be fabricated with conventional woodworking tools into virtually any design. Corian® is the original solid surface material made only by DuPont. It is widely accepted as a material for countertops, vanity tops, tub/shower walls, kitchen sinks, vanity basins and laboratory bench tops in numerous markets including lodging, healthcare, banks, boutiques, restaurants.

Composition

DuPont™ Corian® is a solid, non-porous, homogeneous surfacing material, composed of $\pm 1/3$ acrylic resin (also known as PolyMethyl MethAcrylate or PMMA), and $\pm 2/3$ natural minerals. These minerals are composed of Aluminium TriHydrate (ATH) derived from bauxite, an ore from which aluminium is extracted. For more information on the composition of the material, please consult the Corian® Material Safety Data Sheets (MSDS) available via the msds.dupont.com site or via your local supplier.

Standard products

DuPont™ Corian® Sheets

Available in various standard thicknesses, easily cut to size by professional fabricators. All colours in the standard colour palette are available in 12 x 760 x 3658 mm sheets.

Some of these colours are also available in various other sizes.

Some standard dimensions of DuPont™ Corian® sheets are:

- 4 mm sheet: 930 x 2490 mm
- 6 mm sheet: 760 x 2490 mm
930 x 2490 mm
- 12 mm sheet: 760 x 3658 mm
930 x 3658 mm
- 19 mm sheet: 760 x 3658 mm

Check with your supplier for the latest product offering.

DuPont™ Corian® Shape Products

A wide range of DuPont™ Corian® shapes, made using injection moulding technology, is available in

4 solid colours for custom integration with Corian® sheets to create an entire, continuous surface. This includes vanity basins in solid colours for bathrooms, and single and double sinks for kitchens, bars and small wash-up areas, hospitals and laboratories. Seamed undermounting technique eliminates rims that trap dirt and water, minimising cleaning and maintenance and providing improved hygiene. Care, maintenance and installation instructions are included in the packaging. Appropriate accessory products, including installation hardware, are available and recommended for residential kitchens only.

The colours of Corian®

The colours of Corian® allow for an almost unlimited working palette. You can choose a single colour; a neutral basis for design; or experiment with eye-catching harmonies. DuPont™ Corian® can also be used as inlays, accents, or as a versatile complement to other materials like metal, wood, stone, etc.

For complete information on colours, refer to the latest leaflet about the colours of Corian® or to the www.corian.com website. Hues, patterns and textures are related by style and character. Dark, heavily pigmented colours of Corian® will show scratches, dust and ordinary wear and tear more readily than lighter, textured colours. These colours are recommended for applications where surface contact is light or for use as inlays and accent colours.



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Custom sheets

DuPont can manufacture Corian® sheets in custom colours, patterns and dimensions, within manufacturing capability limits and based on a minimum order quantity.

Limitations

Contact a local specialist, distributor or fabricator of Corian® or the Information Centre for DuPont™ Corian®. Although DuPont™ Corian® can withstand high temperatures, it should be protected with hot pads or heat shields against direct heat.

Use of 4 mm and 6 mm sheets should be restricted to vertical applications or certain furniture applications only. The choice between 12 mm and 19 mm is generally based on performance and cost considerations.

Due to the complex blending of natural minerals and man-made acrylics, slight colour variations may be found within a sheet or from sheet to sheet of same colour. Therefore, checking for colour matching is an essential element of sheet inspection before starting fabrication.

DuPont™ Corian® is non-porous so spills and stains will not be absorbed into the material. However, some chemicals can stain, discolour or damage the surface of Corian®. These chemicals include strong acids (like concentrated sulphuric acid), ketones (like acetone), chlorinated solvents (like chloroform) or strong solvent combinations (like paint remover). The extent of the damage will depend on the length of contact. Except for paint remover, short periods of contact will not usually cause severe damage to Corian®. Acid drain cleaners should not be used as they can damage both Corian® and any plastic plumbing beneath. Corian® is not recommended for use in photographic processing laboratories. More information can be found in the section "Chemical Resistance of Corian® Products". In some hospitals and laboratories where strong disinfectants come in contact with

DuPont™ Corian®, it is recommended that solid colours are used and extended contact is avoided.

4. Performance properties and characteristics

Typical performance properties of DuPont™ Corian® are shown in Table 1. The performance of Corian® sheets may vary according to the thickness of the material (4 mm, 6 mm, 12 mm or 19 mm), its aesthetics and surface finish.

Since its introduction in 1967, DuPont™ Corian® has proven itself to be remarkably durable, versatile and easy to live with in both the home and commercial environments.

Colours and patterns run through the entire thickness of the material and cannot wear away or delaminate. Joints can be glued inconspicuously, making virtually unlimited surfaces possible.

Surfaces in Corian® are renewable, meaning they can be fully restored with ordinary mild abrasive cleansers and a scouring pad. Cigarette burns, for example, can be easily removed in this way. Damage caused by abuse can usually be repaired on site without having to completely replace the material.

DuPont™ Corian® surfaces are hygienic. Because it is a non-porous material, bacteria and mould cannot be trapped and proliferate in its joints, nor underneath the surface.

Corian® is an inert and non-toxic material. Under normal temperature conditions, it does not emit gases. When burned, it releases mainly Carbon Oxides and the smoke generated is optically light and does not contain toxic halogenated gases. Because of these properties, Corian® is used in public spaces and delicate applications such as airport check-in counters, wall and work surfaces in hospitals and hotels.

DuPont™ Corian® can be thermoformed in wooden or metal moulds at controlled temperatures in order to create various 2D and 3D

design objects. Embossing effects can also be created using Bas Relief technique.

The translucency of DuPont™ Corian® is especially striking in the lighter colours as well as in thinner sheets. Many designers are using it to create lamps or lighting effects in various applications. The new colour family, called as Translucent Series, consists of 6 colours in 6 mm and 12 mm sheets featuring enhanced translucency to be used to create special lighting effects.

Inlaying DuPont™ Corian® with different materials or with different colours of Corian® is possible and can enhance the inherent beauty of the material. Inlays and logos can also be created on Corian® using dye sublimation or direct printing techniques.

5. Fabrication and installation

Detailed information on the fabrication and installation of DuPont™ Corian® is available in the fabrication and installation booklets on Corian® as well as in technical bulletins.

Seams

To minimise material usage and facilitate installation, a corner block of Corian® should be made square (butt) rather than mitred. The edges to be joined should be straight, smooth and clean. Some seams need to be reinforced (see fabrication manual for details). Joints should only be made with "Joint Adhesive for DuPont™ Corian®". Cutouts should be made with a router equipped with a sharp carbide bit, with a minimum diameter of 10 mm. All corners of a cutout must be rounded to 5 mm radius and the edges smoothed, both on top and bottom, all around a cutout. "L" and "U" shaped corners need smooth, 5 mm radius inside corners. For hob cutouts, corners should be reinforced with a Corian® corner block. See fabrication manual for more details.

Some colours of Corian® that feature random veins and irregular patterns require special considerations regarding

the seams. Please refer to the related technical bulletin for best practices in fabrication of these colours.

Sealants and adhesives

Corian® is compatible with many commercially available caulks and sealants. However, the specially developed silicone sealant sold by DuPont or its distributors is recommended for best performance and colour match. Vertical panels of Corian® may be installed over suitable substrates, including water-resistant gypsum board, marine-grade plywood and ceramic tiles. In case a support is needed, apply perimeter frame or full support direct to Corian® using large beads of flexible adhesive leaving a space with a minimum thickness of 1.5 mm.

For making seams in countertops, repairs and custom edges, "Joint adhesive for Corian®" in matching colour should be used.

When used in accordance with manufacturer's instructions, it provides a smooth and inconspicuous joint. Joint adhesive for Corian® is available from DuPont or its distributors.

Clearances

The minimum expansion clearance for Corian® is $35 \times 10^{-6} \times (\text{length of the piece of Corian®}) \times (\text{biggest temperature range expected in } ^\circ\text{C})$ in mm. Joints to be caulked should be approximately 1.5 mm wide to allow satisfactory caulk penetration and expansion.

Precautions

Product dimensions are nominal. If tolerances are critical, review your needs with a specialist of Corian®.

6. Availability and cost

Availability

DuPont™ Corian® and accessory products are readily available through a worldwide network of Distributors and certified Fabricators/Installers. Please check the Yellow Pages or call the Information Centre for DuPont™ Corian® for the name of a local distributor.

Cost

Cost varies with thickness and width as well as custom fabrication and installation details. Contact the Information Centre for DuPont™ Corian® for the names of certified Dealers, Fabricators/Installers, who can supply price information.

7. Warranty

Ten-year warranty DuPont offers Corian® with two levels of warranty protection. The limited "Product" warranty is standard for all Corian® products and ensures that all products will be free from manufacturing defects for a period of 10 years after purchase. A higher level of protection, the 10 year limited "Installed" warranty, is available through fabricators member of the "Corian® Quality Network". This "Installed" warranty expands the "Product" warranty to ensure that both the fabrication and the installation of the finished product will be free from defect. With two levels of warranty protection available, you can value engineer warranty coverage for each project. Feel free to discuss your needs with a local specialist of Corian®.

8. Maintenance

Preventing damage to Corian®

Avoid prolonged exposure to strong chemicals such as acids, bases, and organic solvents. Spills should be cleaned up promptly. Refer to Table 2 for additional details regarding chemical exposures, clean up, and general maintenance. In case of exposure outside the specifications listed in the Class I Reagents section, the 10 year limited product warranty will be void and handled as a case of abuse. While unaffected by minor impacts, Corian® can be damaged by heavy impacts, especially from pointed objects. Corian® can also be damaged by excessive heat. A local specialist of Corian® can help you include appropriate heat management into your designs.

Repairing Corian®

DuPont™ Corian® provides superior value by being inconspicuously repairable in most cases. Minor cuts, scratches, and stains can be removed by owners using fine sandpaper and Scotch-Brite™ pads. Deeper cuts or impact damage such as cracks may require a licensed service centre or a Corian® Quality Network member to make inconspicuous repairs.

9. Technical services

There is a Technical Support Team for Europe, Middle East and Africa.

10. Additional information

DuPont has many bulletins which give additional information about Corian® and its properties, including removal of radioactive compounds and HIV (AIDS virus) in healthcare facilities, as well as weatherability and VOC rating. Also available are bulletins, which detail fabrication, installation, repair, and proper use of accessories.

11. Legal

This information corresponds to our current knowledge on the subject.

It is offered solely to provide possible suggestions for your own experimentation. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information may be subject to revision as new knowledge and experience becomes available, since we cannot anticipate all variations in actual end-use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right.

Table 1: performance properties of DuPont™ Corian® products

PROPERTY	TEST METHOD	TYPICAL RESULTS		UNITS	*
		6 mm sheet	12 mm sheet		
Density	DIN ISO 1183	1.73 – 1.76	1.68 – 1.75	g/cm ³	1
Flexural modulus	DIN EN ISO 178	8920 – 9770	8040 – 9220	MPa	1
Flexural strength	DIN EN ISO 178	49.1 – 76.4	57.1 – 74.0	MPa	1
Elongation at break	DIN EN ISO 178	0.58 – 0.94	0.76 – 0.93	%	1
Compressive strength	EN ISO 604	178 – 179	175 – 178	MPa	1
Resistance to impact (spring load)	DIN ISO 4586 T11	> 25	>25	N	1
Resistance to impact (ball drop)	DIN ISO 4586 T12	> 120	>120	cm	1
Surface hardness (Mohs index)	DIN EN 101	2-3	2-3		1
Resistance to surface wear	DIN ISO 4586 T6	63 – 75	58 – 63	Lost weight mm ² /100 rev.	1
Resistance to boiling water-increase in weight	DIN ISO 4586 T7	0.1 – 0.7	0.1 – 0.3	%	1
Resistance to boiling water-surface change	DIN ISO 4586 T7	No visible change	No visible change		1
Dimensional stability at 20°C	DIN ISO 4586 T10	< 0.16	< 0.16	% change in length	1
Resistance to dry heat-180°C	DIN ISO 4586 T8	4-slight change	4-slight change		1
Lightfastness (Xenon arc)	DIN ISO 4586 T16	> 6	> 6	Blue wool scale	1
Anti-slip properties-with 100 µm	DIN 51130:1992-11	5.8° – do not pass R9 requirement (6° min)		° angle	2
Anti-slip properties-with 120 µm	DIN 51130:1992-11	7.6° – pass R9 requirement (6° min)		° angle	2
Anti-slip properties-with 150 µm	DIN 51130:1992-11	8.1° – pass R9 requirement (6° min)		° angle	2
Resistance to bacteria and fungi	DIN EN ISO 846	Does not support microbial growth			3
Electrostatic surface behaviour	DIN IEC 61 340-4-1		> 1 x 10 ¹²	Ω	4

(1) test report Q IWQ MBL 733 1785-1 (for classification according to DIN EN 438 part 1 & 7) from LGA –Germany/04-2004

(2) test report BMW 0411048-03 from LGA-Germany/03-2004

(3) test report 5642219 from LGA-Germany 03/2004

(4) test report EMA-SMG-814 1131 IWQ-MBL 734 1109 from LGA-Germany/03-2004

Table 2: fire properties of DuPont™ Corian® products

PROPERTY	STANDARD	CLASS/ RESULTS	PRODUCT	Type/Area of application	*
Euroclass for Reaction to fire	EN 13501-1	C-s1,d0	Standard grade, all colours, 6 & 12mm	With any substrate of A2 or better fire performance	1
Euroclass for Reaction to fire	EN 13501-1	C-s1,d0	Standard grade, all colours, 12mm	On a substrate with a fire performance of D or better. (wood based substrate)	2
Euroclass for Reaction to fire	EN 13501-1	B-s1,d0	FR grade colours, 12mm	With any substrate of A2 or better fire performance	3
Euroclass for Reaction to fire	EN 13501-1	B-s1,d0	FR Grade, GW, 12mm	Applied on aluminium profiles with a gap of 50mm	4
Euroclass for Reaction to fire	EN 13501-1	B-s1,d0	Standard grade, GW, 12mm, 930mm wide	Applied on aluminium profiles with an airgap and with mineral wool insulation	5
Euroclass for Reaction to fire	EN 13501-1	B-s1,d0	Ice White, 6mm (Illumination series)	Installed with an airgap in the back	6
Fire behaviour	BS 476 part 6&7	Class 0	FR grade, GW, 12mm	Not specified (material test)	7
Flammability test	DIN 4102-1	B1	FR Grade, Genesis colours	With a distance of >40mm from other materials	8
Reaction to fire - M Classification	NF P 92-501	M2	Standard Grade, 12mm	Not specified (material test)	9
Reaction to fire - M Classification	NF P 92-501	M2	CW, 6mm	Not specified (material test)	10
Smoke index - F Classification	NF F 16-101	F0	CW, 6 & 12mm	Not specified (material test)	11
Calorific potential	EN ISO 1716	9.15 KJ/g	12mm, CW	Not specified (material test)	12
Fire test - Aviation	JAR/FAR - AITM	Pass	FR Grade	Aviation	13
Fire test - Railroad	DIN 5510-2 / DIN 54837	S 4, SR 2, ST 2	12mm	Railroad vehicle	14
Smoke toxicity	DIN 5510-2 / EN ISO 5659-2	Pass	12mm	Railroad vehicle	15

(1) classification report E131025 from Warrington Fire Research-UK/03-2003

(2) classification report 13126E from Warringtonfiregent-Belgium/02-2008

(3) classification report E131024 from Warrington Fire Research-UK/03-2003

(4) classification report 13448C from Warringtonfiregent-Belgium/12-2008

(5) classification report 13700C from Warringtonfiregent-Belgium/03-2009

(6) classification report 230006665 from MPA NRW-Germany/09-2008

(7) test reports 154054 & 154053 from Warringtonfire-UK/09-2006

(8) test report 230005623 from MPA NRW-Germany/2006

(9) classification report 14540-09 from SNPE-France/04-2009

(10) classification report 1226105 from SNPE-France/05-2005

(11) classification reports 11625-04 & 12261-05 from SME/SNPE-France/03-2004 & 05-2005

(12) test report 11624-04 from SNPE-France/03-2004

(13) test report 05-0530 from Fire Test Laboratory Airbus Deutschland GmbH – 2005

(14) test report P60-08-0018 (test according to DIN 54837, classification according to DIN 5510-2) from RST-Germany/01-2008

(15) test report P60-08-3107 (test according to EN ISO 5659, evaluation according to DIN 5510-2) from RST-Germany/02-2008.

Chemical resistance of Corian® products

CLASS I reagents

The following reagents show no permanent effect on Corian® sheet when left in contact for periods of 16 hours.

The chemical residues can be removed with a **wet Scotch-Brite™ pad and bleaching cleanser**. Sometimes, minimal effects have been observed, particularly those indicated by footnotes (*).

Table 3: CLASS I reagents

<ul style="list-style-type: none">• Acetic Acid (10%)• Acetone**• Acrodine Orange• AG Eosin Blue (5%)• AG Gentian Violet• Ammonia (10%)• Ammonium Hydroxide (5, 28%**) • Amyl Acetate• Amyl Alcohol• Aromatic Ammonia• Ball Point Pen• Benzene**• "Betadine" Solution• Bite Registration Accelerator (2% Eugenol)• Bite Registration Base• Bite Registration Mix (50/50)• Bleach (Household Type)• Blood• B-4 Body Conditioner• Butyl Alcohol• Carbon Disulphide• Carbon Tetrachloride***• "Cavity" in Phenol• Citric Acid (10%)• Caulk IRM (with or w/o ZnO)• Calcium Thiocyanate (78%)• Cigarette (Nicotine)• Coffee• Cooking Oils• Copalite Intermediary Varnish• Cotton Seed Oil• Crystal Violet• Cupra Ammonia• Debacterol• Dimethyl Formamide• Dimethylene Blue• Dishwashing Liquids/Powders• "Dry Bond" Dental Adhesive• Eosine• Equalizing Accelerator (23% Eugenol)• Equalizing Base• Ethyl Alcohol (Ethanol)**• Ethyl Acetate	<ul style="list-style-type: none">• Ethyl Ether**• Eucalyptol• "Eugenol" (with or w/o ZnO)• Ferric Chloride• "Fisher" Formaldehyde (40%)• Food Colouring• Formaldehyde• Gasoline• Gentian Violet• Hair Dyes• Household Soaps• Hydrochloric Acid (20, 30%)• Hydrogen Peroxide• Introfiant Arterial Chemical• Iodine (1% in alcohol)***• "Kelviscera" Cavity• Kerosene• Ketchup• Lemon Juice• Lipstick• Liquid shoe polish• "Luralite" Accelerator (16% Eugenol)• "Luralite" Base• Lye (1%)• "Lysol" Brand Cleaner• Mercurochrome (2% in water)***• Methanol**• Methyl Ethyl Ketone• Methyl Orange (1%)• Methyl Red (1%)• Mineral Oil• Munsel's Solution• Mustard• Nail Polish• Nail Polish Remover (Acetone)• Naphthalene (Naphtha)• Neotopanel• n-Hexane• Nitric Acid 6%• Olive Oil• Pencil Lead• Perchloric Acid• Permaflow Preinjection• "Permaglow" Arterial Fluid• Permanent Marker Ink• Peroxide	<ul style="list-style-type: none">• Phenolphthalein (1%)• Phosphorus Pentoxide• Picric Acid• "Procaine"• Potassium Permanganate (2%)• Restorative Anti-dehydrant• Saffron• Salt (Sodium Chloride)• Shoe Polish• Silica Dental Cement (liquid)• Silver Nitrate (10%)• Soapless Detergents• Sodium Bisulphate• Sodium Hydroxide Solution (5, 10, 25, 40%**) • Sodium Hydroxide Flake**• Sodium Hypochlorite (5%)• Sodium Sulphate• Solitine solvent• Soy Sauce• Sugar (Sucrose)• Sulphuric Acid (25, 33, 60%)• Tannic Acid• Tea• Tetra Hydrofuran• Tetramethyl Rhodamine Isothiocyanate• "Thymol" in Alcohol• Tincture of Iodine• Tincture of Mercurochrome• Tincture of Merthiolate• Toluene***• Tomato Sauce• Trichloroethane• Trisodium Phosphate (30%)• Trypan Blue• Urea (6%)• Uric Acid• Urine• Vinegar• Washable inks• Wine (all varieties)• Wright's Stain• Xylene• Zephiran Chloride• Zinc Chloride• Zinc Oxide (paste, ointment)
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* May cause surface etching or deglossing after 16 hours exposure

** May cause slight lightening after 16 hours exposure

*** May cause slight darkening after 16 hours exposure.

CLASS II reagents

Corian® is not recommended for working areas where CLASS II reagents may come in contact with Corian®.

The 10 Year Limited Installed and Product warranty does NOT apply where class II reagents come in contact with Corian®.

The occasional stain that might result from inadvertent exposure to Class II reagents can often be removed. Scrubbing with household cleanser will remove light stains. More stubborn surface stains will require sanding with fine to coarse sandpaper.

The following residues may require sanding for complete removal:

- Acetic Acid (90, 98 %)
- Acid Drain Cleaners
- Aqua Regia Cleaner
- Chlorobenzene
- Chloroform (100 %)
- Chromic Trioxide Acid
- Cresol
- Dioxane
- Ethyl Acetate
- Equalizing Mix (50/ 50)
- Formic Acid (50, 90 %)
- Furfural
- Glacial Acetic Acid
- Giemsa
- Hexaphene Autopsy/Viscera Treatment
- Hydrofloric Acid (48 %)
- Luralite Mix (50/ 50)
- Methylene Chloride-Based

Products

- Paint Removers
- Brush Cleaners
- Some Metal Cleaners
- Nitric Acid (25, 30, 70 %)
- Phenol (40, 85 %)
- Phosphoric Acid (75, 90 %)
- Photographic Film Developer (used)
- Sulphuric Acid (77, 96 %)
- Trichloroacetic Acid (10, 50 %)

Specialised products

Biochemistry staining agents in most instances will stain Corian® after a few minutes' exposure. However, the stains are generally removable by prompt scrubbing with acetone as indicated below.

- Giemsa
- Trypan Blue - Stains removed with acetone
- Acridine Orange
- Safranine
- Crystal Violet - Stain incompletely removed with acetone

The following dental treatment materials will degloss, etch, or slightly stain Corian® Surfaces. Affected areas may be restored by scrubbing with a Scotch-Brite™ cleaning pad.

- Copalite Intermediary Varnish
- Caulk IRM (with or without ZnO)
- Eugenol (with or without ZnO)
- Luralite accelerator (16 % Eugenol)
- Luralite base
- Solitine solvent

- Equalizing accelerator (23 % Eugenol)
- Equalizing base
- Bite registration base
- Bite registration accelerator (2 % Eugenol)
- Bite registration mix (50/50)

Stains caused by the following dental treatment materials may require light to moderate sanding for removal:

- Luralite mix (50/50)
- Equalizing mix (50/50)

Note:

- Products that are not listed may be similar to the ones that are. Please compare the ingredients listed on their label or in their Material Safety Data Sheet to the ones mentioned.
- The published data are for 16 hours exposure time. In reality exposure can be much longer. A leaking hand-soap dispenser may cause a liquid puddle under it for weeks and months. Similarly some containers have poorly designed spouts/caps from which product leaks every time they are used, so that they stand constantly in their spill. If needed, a drip cup or a spill tray in a suitable material would address these situations.
- The resistance to staining of Joint Adhesive is slightly less than that of Corian® sheet and shape.
- Our draining accessories are recommended for residential kitchens only!

Scotch-Brite™ is trademark of 3M.

For more information, please visit our web site:

www.corian.com



The miracles of science™