

DuPont™  
**ZODIAQ®**  
QUARTZ SURFACES

Edition 2006



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**"A thing of beauty is a joy forever"**

(John Keats)

## Beauty without compromise

Almost every decision we take is made on two levels – rational and emotional – and this is never truer than the decisions we take in design. The materials we select must work on both levels – rationally, they need to do their job well, to be the right colour, to be long-lasting; emotionally, we desire beauty, we strive for that indefinable ‘X’ factor, for individuality and exclusivity.

If a material doesn’t meet both criteria, there will always be a sense of compromise. An installation that measures up to our visual ideal may not perform well once in use, or stand the test of time. A highly functional design may not entirely fulfil our aesthetic vision.

With Zodiaq®, function and aesthetics are inextricably linked. The decorative solid surfacing material is composed of 93% natural quartz, which is one of the hardest substances known to man, and also one of the most intriguing. This quartz content gives Zodiaq® its twin characteristics of beauty and strength.

Aesthetically, Zodiaq® is high-impact, distinctive, unforgettable. It creates drama wherever it is used. Sparkling crystals within its surface give a stunning light-play and a mesmerizing depth, while the surface’s inherent sheen adds to this reflective effect. The result is a material that can express itself: a material that inspires emotion and reaction.



Underlining its expressive nature, Zodiaq® offers a wide range of colours, including hues that do not exist in natural stone such as intense reds, blues and greens, and pure white. The patented pigment-polymer technology used by DuPont to create this colour range is a sublime example of the way nature can be enhanced by technology. It not only expands the creative potential of Zodiaq®, but also ensures consistency of structure and tone, creating a cohesive look throughout an installation.

So Zodiaq® equals beauty. It also equals strength and longevity. Zodiaq® is impact- scratch- and heat-resistant. This allows it to retain its beauty for many years, even in very high-traffic environments.

Being naturally non-porous, Zodiaq® is also stain-resistant. This makes it hygienic and simple to clean – stains like fruit juice and wine, which can ruin some stone surfaces, are easily removed using ordinary household cleansers. And Zodiaq® keeps its lustrous sheen without the need for sealants or waxes, making it low-maintenance.

Zodiaq® can be used for a wide range of horizontal and vertical applications across all sorts of environments. It can be cut to exact requirements with complete precision, and is worked and installed using the same techniques and machinery as any natural stone. Designed with designers in mind, Zodiaq® is produced in large slabs, allowing for the creation of large areas while minimising the need for distracting seams.

As humans we have an intrinsic desire for beauty, and in our interior spaces, this often manifests itself as a love of beautiful, intriguing materials such as natural stone, wood or glass. Zodiaq® allows us to bring natural beauty to our spaces without compromising on performance. A true marriage of the rational and the emotional.





## **CASE STUDIES**

The mythology of the Zodiaq® stars shifts into our everyday life, our homes, our offices and public spaces, becoming a familiar surrounding yet expressing unusual class.

They are the bridge between our processes of emotion, sharing, feeling and the dimensions of living in a real space.



## SHOPS



Red Tunnel at Selfridges store, Oxford Street, design Lucy Tilley at David Adjaye.



CAROLI RED  
INDUS RED





# FOOD



**Left and pictures on top:** Radisson SAS Hotel, Liverpool, design AEDAS AHR.

**Above:** Lambeau Field, project direction Stuart Zadra.



**MAGELLAN GREEN**  
**CYGNUS PEARL**

## FOOD





# FOOD



McDonald's Restaurant, Helsinki, design Tero Ahava.

**NEW!**



**NEW!**



**NEW!**



**CHALK WHITE\***  
**SAND BEIGE\***  
**CLAY BROWN\***

*\* Dark matt/honed surfaces show marks more readily, please be aware that higher maintenance may be required.*

FOOD



Stephen-Hawking-School, Neckargmünd, architect company Donning + Unterstab.

INDUS RED  
CAROLI RED



FOOD







# HOTEL



Reykjavic, Iceland.



VORTEX BLACK

HOTEL



Alexander Hotel, The Netherlands.



**BOREALIS BLUE**  
**SPACE BLACK**





HOTEL



Lambeau Field, project director Stuart Zadra.



**CYGNUS PEARL**  
**PAPYRUS**





# MARINE



Queen Mary II, by Tillberg Design.



**GALAXY BLACK**  
**SPACE BLACK**



# HEALTHCARE



Medical + dental practice, design Karl Baisch GmbH,  
reception desk and matching treatment cabinet.

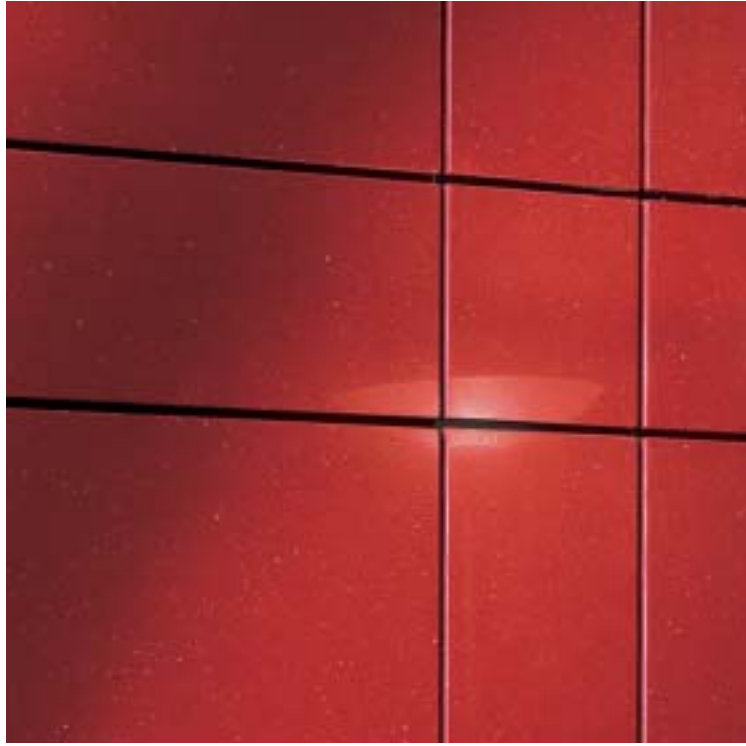


**SPACE BLACK**





# PUBLIC SPACES



Red wall, design DuPont.



## PUBLIC SPACES



Maretarium in Kotka, Finland, design Laitela Arkkitehdit.

CELESTIAL BLUE



PUBLIC SPACES



Gerl, Cologne.







# KITCHEN



Hemmingway Kitchen, London,  
design Gerardine Hemmingway.  
Photo by Darren Chung.

***NEW!***



***NEW!***



***NEW!***



**CHARCOAL BLACK\***  
**GRAVEL GREY\***  
**CONCRETE GREY\***

*\* Dark matt/honed surfaces show marks more readily, please be aware that higher maintenance may be required.*

## KITCHEN



## KITCHEN



**Above:** Kitchen counter top and Mixa® sink.

**Left:** Kitchen, private home, USA.



**CYGNUS PEARL**  
**VORTEX BLACK**  
**ECLIPSE BLUE**

# KITCHEN



Kitchen worktop, design Bruno Piatti.



Kitchen on board a luxury yacht.

CLOUD WHITE  
CELESTIAL BLUE



## KITCHEN



Kitchen, private home.



INDUS RED  
CAROLI RED





# BATHROOM

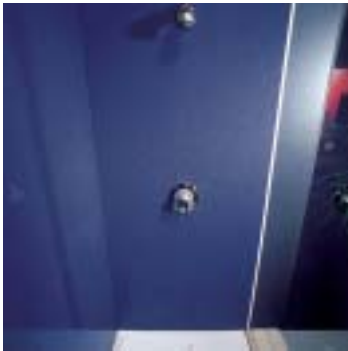


**Above and left:** Bath and double vanity, design Massimo Fucci.



INDUS RED  
CLOUD WHITE  
ALABASTER

## BATHROOM



Double vanity unit and shower, design Fraefel Ag.

CELESTIAL BLUE





BATHROOM



Private bathroom, design Charles Zäch.



CLOUD WHITE  
ALABASTER

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## **WHAT IS ZODIAQ®?**

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Zodiaq® is an advanced composite material made of 93% quartz, a DuPont proprietary binding polymer and pigments developed for one purpose: to create a new material with its own depth and character and a unique aesthetic, suggesting a sense of enlightened luxury and an attitude of bold sophistication. With a cool, fresh, sparkling look, Zodiaq® catches and reflects light, capturing the radiance of quartz crystal. Zodiaq® also has unusual clarity and consistency of colour, qualities that offer great potential for use in both horizontal and vertical applications. Zodiaq® is the original quartz surface material made by DuPont.

## **WHY QUARTZ?**

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Quartz crystal makes dazzling jewellery, yet has the energy and precision to power the most accurate timepieces. Quartz is extremely hard, with unusual depth, clarity and radiance. More reasons why DuPont selected quartz as the core ingredient for Zodiaq®.

Quartz is one of the most varied minerals, occurring in different types, colours and forms, each with its own unique appearance. It is found in the ground, in sand, in rocks - in nearly every geological environment around the world. It is a crystal with many facets in its original form, giving it a radiance similar to that of diamonds. It provides rich aesthetics coupled with extraordinary strength and durability.

## **CHARACTERISTICS**

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### ***Strong***

Zodiaq® stands out for its superior strength and durability. Because it is made of quartz, Zodiaq® has exceptional toughness and a rating of 7 out of 10 on the Mohs' hardness scale. This makes Zodiaq® extremely resistant to scratches, chips, cracks or dulling. Zodiaq® can be cut and installed to meet design requirements with precision, uniformity and consistency. Colours and patterns run all the way through the material and cannot wear off. Zodiaq® is dense and stain resistant, with no sealing required. This capability helps ensure accuracy in ordering, while reducing waste and inventory. It survives the impact, nicks and cuts that can occur with daily wear and tear. Zodiaq® complies with existing class 1 standards for flame resistance and fire safety.

### ***Hygienic***

Zodiaq® surfaces are hygienic because the material is non-porous; bacteria and mould have nowhere to hide. Inert, non-toxic, chemically non-reactive, the hygienic properties of Zodiaq® are certified by an independent laboratory using an Internationally recognized standard method (DIN EN ISO 846).

### ***Workable like stone***

Zodiaq® quartz surfaces can be fit and cut, utilizing the same tools used when working with any marble or stone, to meet exacting requirements with precision, uniformity and consistency. Zodiaq® can be machined, sandblasted and inlaid. Also, a wide variety of edge treatments are attainable.

### ***Consistent***

Zodiaq® offers consistency of structure and aesthetics, ensuring a coherent appearance throughout an installation. In addition, proprietary pigment-polymer technology from DuPont helps ensure uniformity of colours.

## **PRODUCTION**

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Zodiaq® is manufactured by DuPont.

The three main ingredients quartz, pigments and the proprietary polymer are thoroughly mixed in the first step of the process. This mixture is subsequently moved to the so-called 'lay-down' area where the mixture is molded and shaken (vibro-compacted) in a vacuum. This process defines the rough size of the slab in the mold, then compresses all the raw materials together while removing any mixed-in air, effecting the strength and homogeneity of the final product. The slabs move to the curing tower in which the uncured proprietary resin transforms into solid polymer. Subsequently the slabs go through a series of wet abrasive grinding steps. The first step is designed to gauge the slab to the desired thickness.

In the next steps finer abrasives are used to obtain the final surface gloss.

The slabs are then cut to size and moved to a manufacturing shop.

## **GUIDELINES FOR DESIGNING WITH ZODIAQ®**

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### ***Applications***

DuPont™ Zodiaq® Quartz Surfaces are the natural choice for designers and architects. Like stone, Zodiaq® can be precisely machined, allowing designers the freedom to fulfill their visions. Combining authenticity with artistry, Zodiaq® brings a unique dimension to both horizontal and vertical surfaces in all types of interior design applications.

Zodiaq® can be used in a variety of commercial applications including lodging/hospitality, food service, education, retail, healthcare, entertainment and corporate spaces. Other applications include wall cladding, worksurfaces, reception counters, windowsills, bar tops, vanity tops, wet areas, tabletops, sales counters and lab tables. Zodiaq® is equally effective in residential environments, whether contemporary or classic in style. The versatile character of Zodiaq® allows it to make a bold individual statement or to blend harmoniously with other materials such as stainless steel, wood or glass.

This type of application includes kitchen countertops, bath vanity tops, tub decks, and tub and shower surrounds, as well as furniture surfaces and tabletops.

### ***Slab sizes and colours***

All the Zodiaq® colours are available in 20 and 30 mm thickness. Slab dimensions are 1320 mm wide and 3000 mm long. Zodiaq® is available in over 20 colours (for latest Zodiaq® colour offering see separate colour brochure).



### ***Slab Optimization***

The final cost of Zodiaq® surfaces may be heavily influenced by material wastage. In order to reduce costs, DuPont suggests sheet optimization be taken into consideration during the design process.

### ***Substructure***

For surfaces with support on four sides and depths up to 65 cm, an outer perimeter substructure is sufficient (maximum length is 300 cm). For depths exceeding 65 cm, an additional front-to-back support is required every 100 cm. Acceptable substructure materials are moisture-resistant MDF board, plywood, structural steel and wood.

Particleboard is not an acceptable substructure material. Flexible or epoxy adhesive is recommended to fasten a Zodiaq® top to its substructure.

### ***Thermal expansion***

The coefficient of linear thermal expansion for Zodiaq® is about 1 mm/meter, with a thermal excursion of + or - 20° C. A gap of at least 3mm should be left at each end of the worktop to allow expansion when installed in a niche (or recess).

When Zodiaq® is joined to other materials (glass, steel, wood,...) with different thermal expansion coefficients, a flexible type of adhesive is required to let parts expand and contract freely. Mechanical fasteners (screws, nails, etc.) should never be installed directly into Zodiaq®. Inserts may be used; slip fitted and glued rather than pressure-fitted inserts. Apply backsplashes (strips and full height) of Zodiaq® using flexible adhesive. Apply Zodiaq® tiles (pieces smaller than 30 x 30 cm) using tile adhesive.

### ***Overhangs and supports***

Any overhang of 20 mm Zodiaq® extending more than 300 mm, or of 30 mm Zodiaq® extending more than 400 mm, must be supported. 20 mm Zodiaq® should be supported at least every 600 mm; 30 mm Zodiaq® should be supported at least every 900 mm.

A solid substrate along with a leg or column(s) should be used for a 20 mm Zodiaq® overhang exceeding 450 mm and a 30 mm Zodiaq® overhang exceeding 600 mm.

### ***Hobs and sink cutouts***

Radius corners are recommended on all cutouts. A minimum clearance of 3 mm space should be left on all sides to allow for cooktop and sink expansion.

Cutouts have to be supported on all sides within 7.5 cm of the edge of the cutout. Undermounted sinks should be supported with brackets.

## **QUALITY NETWORK**

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Zodiaq® is cut, shaped, polished and installed by skilled craftsmen to create customized designs. The European Quality Network of authorized Zodiaq® manufacturers and installers is available to deliver the premium Zodiaq® fabrication and installation services, according to DuPont guidelines. The DuPont 10-year Limited Installed Warranty is applicable only when Zodiaq® has been installed and manufactured by authorized installers and manufacturers.

## **FABRICATION**

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Zodiaq® must be cut to size, shaped and polished with the appropriate diamond tooling and needs to be done with enough water to keep the surface and the resin cool. Joints must be colour matched with a two part polyester adhesive and filled through the entire seam thickness. Joints must be supported front to back. In addition, any seams that extend into an overhang should fall onto a support. All inside corners of one-piece L, U, etc. shaped tops should have a minimum 6mm radius to reduce corner stresses.

All top and bottom edges of straight-edge profiles should be broken to a minimum of 1.5 mm radius or chamfer.

## **INSTALLATION**

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DuPont™ Zodiaq® is manufactured and installed with the same techniques used for stone and marble. Therefore it is available with various edge treatments and discreet seams.

## **WARRANTY**

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DuPont offers two levels of warranty protection for Zodiaq®; “product” and “installed”.

The “product” warranty is standard for all Zodiaq® products and ensures that they will be free of manufacturing defects for a period of 10 years after purchase.

A higher level of coverage, the DuPont 10-year Limited Installed Warranty applies when Zodiaq® is manufactured and installed according to the guidelines and requirements set forward by DuPont Zodiaq®. With two levels of warranty protection available, you can value-engineer warranty coverage for any project. For further information please contact your local DuPont office (see “Contact” page 46).

## **MAINTENANCE**

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### ***Routine Care***

With simple care, Zodiaq® will retain its radiant, lustrous appearance for many years.

For routine cleaning, use a damp white cloth and, if necessary, a small amount of non-bleach, non-abrasive liquid household cleanser or a household vinegar/water solution (always follow the manufacturer’s dilution instructions).

Even though Zodiaq® resists permanent staining when exposed to liquids (such as wine, vinegar, tea, lemon juice and soda) or fruits and vegetables, wipe up food and liquid spills as soon as possible.

For stubborn spills, use a household vinegar cleaner together with a non-abrasive cleaning pad.

Rinse thoroughly to remove any residue and dry with a white paper towel or a white cloth. Repeat if necessary. Avoid using cleansers that contain bleach. Always follow the cleaner manufacturer's use instructions and exercise proper care when handling and storing any cleaning products.

As with any surface, an accumulation of dirt over time will necessitate periodic cleaning to remove surface contamination. The visibility of surface contamination will depend on both the colour of the

surface and the finish used. For example, in matt finished products some surface contamination (such as grease from fingerprints) may be more visible compared to similar contamination in high gloss finished products.

Consequently the frequency of routine cleaning required may be dependent on both the colour and surface finish selected .

### ***Spills***

Sometimes spills occur and dry on the worktop. Materials that harden as they dry, such as gum, food containing natural dyes (mustard, curry etc.), grease, nail polish or paint etc., should be removed by gently scraping away the residue material with a blunt plastic scraper. Then the quartz surface should be cleaned with a household vinegar/water solution (always follow the manufacturer's dilution instructions) or with a non-abrasive cleaning pad together with a non-bleach, non-abrasive liquid household cleanser and rinsed thoroughly with clean water. Surface should be dried with a clean white paper towel or white cloth.

Repeat if necessary with a household vinegar cleaner.

Permanent markers/inks and some chemicals, solvents or dyes may cause permanent discolouration to the surface and should be avoided.

Should these agents come into contact with the surface, wipe up immediately and rinse with plenty of water. Then clean with a household vinegar cleaner.

If stain persists, the supplier and/or installer of the Zodiaq® quartz surfaces should be contacted for further assistance.

### ***Cuts or scratches***

Quartz is one of the hardest materials in nature. That's why the Zodiaq® surface will not easily scratch or chip. The use of a cutting board is nevertheless recommended.

## **RECOMMENDATIONS**

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### ***Resistance to heat***

Quartz is one of the hardest materials in nature, which ensures that a Zodiaq® surface will withstand limited exposure to normal cooking temperatures from pots, pans and dishes. To maintain the natural beauty of Zodiaq®, DuPont recommends that hot skillets or roasting pans are not put directly onto the surface but placed on a trivet or hot pad instead.

### ***Resistance to stains and chemicals***

Zodiaq® is non-porous, so spills and stains are not absorbed into the surface, making it stain-resistant. However, certain aggressive chemicals, solvents or dyes, especially paint removers, car battery liquid or furniture strippers, may cause permanent damage to a Zodiaq® surface. Products containing bleach, permanent markers and printing inks should also be avoided.

## PERFORMANCE PROPERTIES CHART

PROPERTY	RESULT	UNIT	TEST METHOD
<b>Physical Properties</b>			
Size of sheets	3000 x 1320 x 20, 3000 x 1320 x 30	mm	
Nominal Thickness	2 and 3 cm	cm	DIN ISO 1183
Nominal Weight	49(2cm), 74(3cm)	kg/m <sup>2</sup>	DIN ISO 1183
Density	2.4 -2.5	g/cm <sup>3</sup>	DIN ISO 1183
<b>Mechanical Properties</b>			
Flexural strength	> 35	Mpa	DIN EN ISO 178
Flexural modulus	32,000 - 42,000	Mpa	DIN EN ISO 178
Flexural elongation	0.11 - 0.16	%	DIN EN ISO 178
Compressive Strength	175 - 275	Mpa	EN ISO 604
Ball impact resistance	No cracks at falling height of 1200mm		DIN ISO 4586 T12
Surface Hardness	6 - 9	Mohs	DIN EN 101
Coefficient of linear thermal expansion	0.05	%	EN 438 P9, 10
<b>Performance Properties</b>			
Abrasion Resistance	No loss in weight	mm <sup>3</sup> /100 rev	DIN ISO 4586 T6
Resistance of dry heat (@180°C)	Level 5, No colour change		DIN ISO 4586 T8
Resistance to cigarette burns	Level 5, No colour change		DIN ISO 4586 T17
Chemical resistance	See Table 2		DIN EN 438, part 15
Contamination by mould and fungus	Resistant to bacteria and mould		DIN EN ISO 846
NSF Certification	Listed		NSF Stds
Water absorption (24h)			DIN ISO 4586 T7
% thickness	0.08 - 0.10	%	
% mass	0.04 - 0.06	%	
UV resistance	> level 6		DIN ISO 4586 T16
Resistance to slippage wet area	Class C (standard 25°, unpolished > 30°)		DIN 51 130: 1992-11
Resistance to slippage	Class R9 (standard 7.4°, unpolished 8.4°)		DIN 51 097: 1992-11
<b>Reaction to fire**</b>			
Reaction to fire: flame spread	Class 1		BS 476, part 7, 1997
Reaction to fire: Fire propagation index, I	Class 0		BS 476, Part 6, 1989
<b>Miscellaneous</b>			
Kosher Certification	Certified		Star-K Kosher Certification
Electrical discharge surface resistance	> 10 <sup>12</sup>	Ohm	EN 6134251

### A FINAL NOTE

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 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 become available, since we cannot anticipate all variations in the actual end-use of this information. Nothing in this publication is to be considered as a license under which to operate or a recommendation to infringe any patent right.

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