

WORLDS OF NATURAL STONES PRACTICAL GUIDELINES FOR INTERIOR DESIGNERS



Natural stones are unique snapshots of the moment when hot, liquid rock cooled and solidified. An evidence for the millions of years old processes in the earth's interior, which is still visible today - in different layers, folds, colors and formations.

Compacted stardust, meteor showers, cooling of ther earth's crust, continental drifts, folding of the mountains, volcanic eruptions, the emergence of mankind, ice ages, storm tides, history of mankind - they are all part of the history of our planet, fascinating by their beauty and uniqueness: the natural stones of our earth.



THE NEW STONE AGE: DRAENERT

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FROM THE QUARRY TO THE DRAENERT MANUFACTORY.

It is a long way to go before we have created a natural stone slab for individual DRAENERT furniture. The journey usually begins in a remote quarry where experts with technical skills and a feel for this unique material do the mining.

Quarries for natural stones are located all over the world. Depending on which type of rock we are looking for, we will find it in Asia, America or South Africa. But as well in Central Europe we find numerous deposits of marble, limestone and other rocks. As strange as it may read, natural stone is a "natural grown" material, even if it needed millions of years to do so. Depen-



ding on the geological conditions under which a type of stone evolved, we will find special characteristics with all natural stones which are unique key features and make them unmistakable.

We can only process and offer the material as nature provides it. This is important to be recognized and respected. With this in mind, it can be said that each natural stone slab is a unique piece of nature.







After the customer has selected his stone slab, it goes through a wide variety of different production steps in our manufactory - from the cutting of the stone slab on the portal saw, the milling of the CNC controlled machining center to the finishing touches of the surface by hand.

The technique of polishing is essential for the later appearance of the stone. The final assembly is completed by a last quality check - then the finished piece of furniture is ready for the shipment to the customer.

Our highly qualified and motivated employees are an essential cornerstone of the success of our furniture. About 60 men and women are currently working in 12 different professions at DRAENERT in Immenstaad on Lake Constance. From stone-masons, quality managers to CNC programmers - they all care with dedication for the creation of a designer piece of furniture from natural stone with many days of work, which is individually and perfectly crafted.

OUR STONE PARK AND THE PROCESSING IN OUR MANUFACTORY.

For over 50 years our modern manufactory combines design furniture with traditional craftsmanship. A mix of modern technology and manual work give your table the certain something.

Our park of natural stones, where we permanently keep more than 150 stone types from all over the world on an area of approx. 3000 sqm, is unique. For a better orientation, our collection of natural stones is presented on seven color avenues: From deep black, tasteful brown and pure white to bright sparkling blue and deep green, to sandy-pearlescent yellow as well as to a saturated earthy red.

Here can be found an overwhelming variety of gneisses, quartzites, conglomerates, granites, limestones, marbels, onyxes, sandstones, slates and travertines.



Manufactory & stone park: www.draenert.de/en/company/manufactory.html



THE STONE SELECTION ON SITE OR ONLINE.

DRAENERT offers you and your customers two ways for the individual stone selection: a personal visit on site or online via the DRAENERT homepage MyStone.

WELCOME TO DRAENERT

A dining table made of natural stone is a statement in a room. Since every stone table is unique, we offer our dealers and their customers as a special service the visit to our manufactory and the stone park.

We welcome you in the DRAENERT Orangerie, our showroom. At a location that has won many architectural awards, our visitors may perceive and experience our collection with all senses.

Together with our experts, the customer may always choose his individual stone slab for a dining table from permanently available over 1000 natural stone slabs and as well determine the individual cutting. We also offer insights into the manufactory and production of the high-quality furniture.

Even most unusual special requirements can be realized through expert advice. Not least because of the incomparably beautiful landscape, your visit to Lake Constance will certainly remain unforgettable.





3-D virtual tour through our Orangerie: www.draenert.de/virtual-tour-2021/index.html



THE VISIT OF OUR MANUFACTORY.

TAKE YOUR TIME FOR THE SELECTION OF YOUR INDIVIDUAL STONE SLAB.

Invitation to the DRAENERT manufactory and your individual slab selection for your dining table.

We are looking forward to your visit!

What to do:

- We only offer this service for the selection of a stone dining table or stone conference table.
- Our trading partner registers the end customer for the stone selection at DRAENERT.
- We will be pleased to cover the costs for the overnight stay upon request.
- The end customer will select his stone slab at site.
- The further order process will be done via our trading partner.

MY STONE OUR NATURAL STONE PARK ONLINE.

For our customers worldwide and for everyone who may not visit us, we offer an online tool for the stone reservation via our homepage.

Step by Step to your own stone: The online-reservation tool.



With "MY STONE" we offer our customers the greatest possible flexibility and quick availability of their desired product. With our ONLINE reservation tool for stones, the consultants and their customer can browse online through our stone park and reserve a suitable stone slab. As a customer consultant, you can actively use this possibility in your consultation. We keep more than 1000 individual slabs of over 150 types of stone online for our customers.

Available in real time - all over the world.



1) www.draenert.de/en/materials/stone.html Make your stone selection here.



2) Get more information to the selected stone: details/complete slab/slab selection





To the stone selection www.draenert.de/en/materials/stone.html

3) Make a stone reservation! The stone will now be reserved for 10 days.





TYPES OF STONE HOW DO WE DIFFERENTIATE BETWEEN NATURAL STONES?

Natural stones can be distinguished according to their
genesis as plutonic rock, sedimentary rock or the metamo-
phoric emerged rock. The conversion happens by re-melting
of the plutonic rock mass under enormous pressure and heat,
as it occurs in fold mountains or volcanic mountains.very hard and easy wearing. This can be taken for most of our
stone types. We divide our stones to their surface hardness
into hard stones (H) and soft stones (S).To the hard stones belong: granite, gneiss, quartzite, gabbro,

as it occurs in fold mountains or volcanic mountains.To the hard stones belong: granite, gneiss, quartzite, gabbro,
norite, conglomerates and as well as engineered quartziteThe according rock type is indicated for each stone in our
stone lists. Natural stones are in general considered to beTo the hard stones belong: granite, gneiss, quartzite, gabbro,
norite, conglomerates and as well as engineered quartzite
stones. To the soft stones belong: marble, limestone, traverti-
ne, sand stone, onyx and oil shale.

ROCK TYPE	STONE TYPE	HARDNESS	STRUCTURE	ACID SENSITIVITY
Plutonic rock	granite	hard	homogeneous	
	gabbro, norite	hard	homogeneous	
	sodalithe	hart	with grain	Ś
Sedimentary rock	limestone	soft	with grain	Ś
	onyx	soft	with grain	Ś
	travertine	soft	homogeneous	Ś
	oil shale	soft	homogeneous	
	conglomerate	hard	homogeneous	
Metamorphoric rock	gneiss	hard	with grain	
	quartzite	hard	with grain	
	marble	soft	with grain	Ś
	serpentinite	soft	with grain	(j)



HARD STONES

Hard stones are plutonic, effusive or transformative rocks such as granite, gneiss, quartzite, gabbro, norite, conglomerate and also engineered quartz materials. Hard rocks contain quartz and are therefore very hard natural stones and resistant to acids. Granites in general have a calm, fine to coarse-grained, even appearance. Gneiss, on the other hand, may show attractive graining, inclusions and veins. The colors are often stronger than with marble.

Any damage by usual household appliances and materials (metal, glass, ceramics, porcelain etc.) is not possible - except through massive force.

GRANITE, GABBRO, NORITE

The granite (subspecies are gabbro and norite) is the most common and belongs to the plutonic rocks. The typical feature of all granites is their homogeneous, largely uniform structure with different sized graining. The mineral elements are always quartz, feldspar and mica. Example: Black Ice

SODALITE

No other material has such an intense and bright blue color as the sodalite. Sodalite is a rarely occurring mineral that can be found in magmatic rocks and usually crystallizes in granular mineral aggregates in gray-blue to dark blue color. Important: For daily use it should be noted that the mineral sodalite is hard, but sensitive to acids. Example: Katuba Blue

CONGLOMERATE

Rocks that consist of rounded gravels are called conglomerates. They can be lime-bound or quartz-bound and can sometimes hardly be distinguished from artificial stones, even not by experts.

Example: Verde Marinace

GNEISS

Gneisses are emerged through metamorphosis, i.e., transformation of granite rocks under high pressure and at high

temperatures. Gneiss comes to the surface when either the covering rock layers are eroded, or deep layers have been lifted to the surface due to tectonics.

In its surface structure, pressings, rollings or folds are clearly identifiable.

Example: Copacabana

QUARTZITE

Quartzite is one of the metamorphic rocks. Sandstone was pressed to greater depths and transformed through heat and pressure over millions of years. Quartzites have a high degree of hardness and often have very beautiful color drawings due to traces of embedded minerals. Example: Elegant Brown



Stone Selection www.draenert.de/en/materials/stone.html



GRANITE Black Ice Brazil 1,4 billions of years SODALITHE C Katuba Blue Sambia 570 millions of years 5



CONGLOMERATE

Verde Marinace Brazil 500 millions of years

GNEISS Copacabana Brazil 570 millions of years

QUARTZITE Elegant Brown Brazil 600 millions of years

SOFT STONE 03

To the soft stones belong marble, limestone, travertine, sandstone, onyx and oil shale. The degree of hardness of these rock types is comparable to glass.

ATTENTION: knives and forks or unglazed edges of ceramic tableware may cause fine scratches in the polish. Table mats should always be used. You may find such mats also in our accessories collection.

LIMESTONE

The limestone belongs to the sedimentary rocks and in a certain extent they are the precursor material of marble. On this kind of rock, the recrystallization has not occurred yet. This kind of rocks shows a fascinating variety of colors and expressive banded and veined graining. On the one hand they can be easily polished, on the other hand, these rocks show numerous fine hairline cracks and as well as all other calcareous stones, they are sensitve to acids. Example: Orobico Black

ONYX

A special variation of fine-crystalline lime stones is the onyx (calc-sinter). When on hot sources spontaneously chalky solutions are cooling off, the mineral aragonite will arise, which is related to chalk. This mineral develops rocks of a very transparent and translucent structure. The floral ornamentation as well as the different color pigments of white, yellow, red to blue and different green pigments, offer a unique magic appearance.

Example: Onice Vulcano

TRAVERTIN

Also, the travertines belong to the group of lime stones. Due to its onwn genesis, this kind of sedimentary rock is structured like a sponge. Traversed by a mesh of fine channels and veins it would be possible to look through the stone slabs, but they are unilaterally filled. In order to protect this unique open-porous stone surface approppriately, the travertines, different from all other stones, will be impregnated in our

workshops with a special lacquer.

CARE INSTRUCTION: For the care, the cleaning with a damp soft cloth is sufficient. The common stone care agents are not allowed to be used! Example: Travertin Noce

SWABIAN OIL SHALE

The Swabian oil shale is one of the very few indigenous rocks which are processed by the furniture manufactory. During the Jurassic Age about 180 million years ago, large swathes of today's Europe were flooded by the Jurassic Sea. Created from petrified sea silt, interspersed with countless dead plants and animals, a rock layer was built up as fold layers in the low mountain region from the Swiss to the Swabian and Frankish Jura.

Example: Oil shale

MARBLE

In terms of the genesis, slate belongs to the younger types of rock. They had been built up over millions of years as deposits (sediments) in the primeval oceans in mighty layers of lime dissolved in the water or from the lime shells of dead organisms. Were these stratums sank down into the depth of the earth's crust, they were subjected to increasing heat and pressure. The pressure and the high temperature have caused a complete recrystallization of the lime rock (metamorphosis). Their significant characteristic is the brilliant sparkle of crystals in the sunshine. The coarse-grained variances offer a glamorous visual illusion of depth. Due to its mysterious translucency, it is the classical extensively used stone for sculpturing and as building material. Example: Calacatta Gold

SERPENTINITE

Serpentinites are metamorphic rocks, similar to marble. This brittle material was slightly split up during the tectonic movements with cracks and fissures. Calcite was deposited in these cavities, with interesting contrast-rich grains. Example: Rosso Levanto

LIMESTONE Orobico Black

Italy 250 millions of years

 (\land)

ONYX Onice Vulcano Turkey 2,5 millions of years





OIL SHALE

Swabian Oil Shale Germany 160 millions of years

MARBLE Calacatta Gold Italv 150 millions of years





TRAVERTINE

Travertin Noce Italy approx. 1 million years

SERPENTINITE

Rosso Levanto Italy 160 millions of years



STONE CHARACTERISTICS BETWEEN WHICH CRITERIA WE DIFFERENTIATE NATURAL STONES?

The variety of stones is enormous. Due to our more than 50 years experience in processing of natural stones we have developed a very good and clear structure, which has proved its worth in regard to the stone selection. This is very useful as sales orientation and serves the customer as support in regard of his decision making process. The target is the quick and safe selection of the appropriate stone type according to the customer's needs. Our sales documents show the following differentiation criteria. Our website includes almost the complete stone collection. **www.draenert.de/en/materials/stone.html**

NAME OF THE STONE

The first criterion to make a differentiation of natural stones is the trade name. The names sometimes correspond to the place of origin, but mostly the names are only fantasy names. Therefore, the same stone type may have several different trade names. For example, the stone type Honey Blue is the same as Azul de Macaubas, or the stone type Black Amethyst is the same as Star Galaxy.

ORIGIN

In former times natural stones could most of the time only be processed regionally due to missing transportation possibilities. But today stones from all continents are offered and traded world-wide. Mining and processing techniques as well transportation possibilities by land and water make this exchange of resources almost unproblematic. We are processing stones from all over the world.

COLOR SPECTRUM

Infinite shades and moods can be expressed with natural stones. We sort the stones into seven color avenues: green, blue, black, white, yellow, red and brown. Take advantage from this structured diversity for the relization of your own design ideas. To make the fascination and variety of this special subject of natural stone accessible, you should have seen this collection on Lake Constance.

SLAB STRUCTURE

HOMOGENOUS STONE SLABS:

The color and the structure of the stone shows similar appearance all over the complete slab. For the consultation, a hand sample is sufficient.

GRAINED STONE SLABS:

Grained stone slabs show a different color and mineral distribution like clouds, ribbons or veins. In order to assist you for the consultation, please inform yourself about the current slabs in our online stock. This enables your customer to make his safe choice. In our sales documents the grained stone slabs are marked accordingly.

PRICE GROUPS:

The price depends on the origin, the demand, the rarity and other factors. We offer our stones in price categories from 2 to 6.

For the approx. 50 standard stones (please see the price list) of our natural stone collection, the price can be guaranteed for a period of one year. All other stones can be found with updated price category on our homepage.



SURFACES EACH NATURAL STONE SURFACE IS SELECTABLE IN THREE OPTIONS:





POLISHED SURFACE

This is the classic stone surface. With up to seven different grinding and polishing processes, exclusively by water and corundum grinding discs, we receive a reflective, high-gloss surface.

LEATHERED SURFACE

In order to preserve the optical and haptic origin of the stone, we offer the leathered surface. This surface will be received by processing the stone with steel brushes and afterwards smoothing it with plastic brushes. This process removes the softer minerals, and the stone structures will be worked out in relief. The stones which are especially appropriate are accordingly marked in our stone lists.

MATT SURFACE

By omitting the final and finest sanding processes, we receive a flat, matt surface without any gloss. The brilliance and the color depth of the stone surface will slightly be attenuated.







STONE TOP VS SOLID WOOD TOP





IS A STONE TOP MORE USER-FRIENDLY AS SOLID WOOD? Compared to the traditional furniture material wood, natural stone offers a lot of advantages:

1. HIGHER DEGREE OF HARDNESS

Natural stone is significantly harder than solid wood and can therefore hardly be scratched or get pressure points.

2. NATURAL COLOR VARIETIES

The wealth of colors of the natural stones seems to be almost limitless and shows the entire color spectrum, without artificial coloring. Contrary to solid wood this diversity offers to the interior architect a greater design freedom.

3. NO COLOR CHANGE

The color of the stone slab remains permanently unchanged. Even by UV-irradiation there is no darkening or fading as it appears with solid wood. This offers a special advantage for extendable tables, as the extension top is mostly kept in the shade.

4. VERY LITTLE INFLUENCE FROM HEAT OR COLD

Neither a hot pot nor a bottle, just taken from the freezer, is a problem for a natural stone top. Any burning stains on the surface (as with solid wood), nor shattering of the top (as with glass) have not to be feared.

5. NO SWELLING AND SHRINKING

Although natural stones absorb liquids, they do not change their form or size. There is no drying out or any distortion. This applies especially to extreme locations like floor heating or conservatories with direct sunlight.

RESULT:

Tables of natural stones are absolutely dimensional stable and colorfast.

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()) SENSITIVITY AGAINST ACIDS

All calcareous stones (marble, lime stone, onyx, serpentinite) and the sodalite (hard stone) are sensitive to acids. This means, they get matt stains on the surface in very few minutes. Acidic liquids are e.g., wine, sparkling wine, fruit juice or mineral water.

For natural stones there is no sealing of the surface, as we know it from a wooden or metal surface. Stone is too hard - no lacquering will adhere consistently on this surface. Formerly it was very common to coat the stone surface with polyester, but with great disadvantages. Over the time, polyester is yellowing, becomes brittle and can peel off the surface.

The DRAENERT philosophy regarding the processing of natural stones has always been to treat the stone exclusively with the finest polishing with corundum polishing discs and water. We do not use lacquer or polyester on natural stones.

Stains caused by acids on polished surfaces may not be repaired at site. The work-up may only be made in our factory or from a qualified stonemason at site.

Acid stains however on leathered or matt surfaces can in some cases be reworked at site with the DRAENERT repair set (please see details on page 28).

Despite these characteristics lime stones and marbles are actually very demanded. In our company the proportion of table tops from marble or limestone is significantly higher as such from hard stones.

The knowledge of its specific characteristics helps to enjoy this unique material for a long time. It is very important that the sales consultant informs the customer about these specifics.

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We have the following practical advices for acid-sensitive stones:

1. SURFACE

The leathered surface is much less complicated as a polished surface. On the one hand, stains are not that visible, on the other hand, they can be reworked with the repair kit.

2. PREVENTION

Prevention is the best protection. Place mats and coasters should always be used.

3. REACTION TIME

Should any liquid come directly onto the stone, it must be wiped up immediately. The surface must be cleaned with clear water. The longer the liquid penetrates the stone, the more visible will be the acid damage.

4. ON-SITE REPAIRS

In the case of leathered surfaces, minor acid damages can be grinded away and repaired at the customer's premises by using the DRAENERT repair kit.

5. REPOLISHING IN THE FACTORY

All acid damages are repairable! A new polish in the factory is possible at any time, comparable to the reconditioning of solid wood tables.

CHARACTERISTICS OF NATURAL STONE

NATURAL CHARACTERISTICS MAKE EACH STONE UNIQUE.

Depending on the geological conditions on which each stone has emerged, we find in all natural stones typical features, which show their character and make them distinctive.

Below are listed the major features:

1. DULL SECTIONS

Almost all rocks, are laced with crevices, fissures, and larger



cavities. We fill some of them by a mixture of rock powder and synthetic resins. Without such a skilled finishing, many stones could not be offered. But these filling materials may not be high-gloss polished and remain visible as dull areas in the polished surface.

2. VEINS AND NESTS OF CRYSTALS

Optical anomalies, even with stones of usually homogeneous appearance, are not uncommon. They are caused by the accumulation of one of the rock-forming minerals and may not always be excluded in the cut, because of the required size of the table top in each individual case.

3. CRAQUELÉ

Very few stone surfaces show a net of fine hair fissures, which sometimes are even perceptible. Especially this effect occurs in the mirror view, this means the view against



the light and as well as on all coarse-grained stones like granites, gneisses or conglomerates. A completely closed, high-gloss polish can in general not be achieved with natural stone surfaces.

4. COOLING CRACKS (MAST LEAPS)

Such features can mostly be found in coarse-grained granites in the larger minerals. In gneisses these occur mainly in the middle of the surface. Cooling cracks can be



several cm (inches) long, they are visible and can be felt. They originate from the cooling time of the rock and these are grown with minerals over millions of years. A risk of breakage of the stone is not to be feared.

5. CREVICES AND PORES

Especially in the fine-grained sedimentary rocks, such as sandstone, quartzite, limestone or marble can be found very small holes (approx. 2 mm) in the polished surface. They permeate the complete stone and cannot be filled with synthetic resins, because this filling would chip out again during the polishing process.







CARE/REPAIR/DAMAGES

HOW TO MAINTAIN AND CLEAN STONE TOPS

Natural stone slabs are hygroscopic. Basically, they absorb liquids very quickly. Treated with the factory oil-wax emulsion delays the quick absorption of liquids, allowing enough time to wipe them off. A damp cloth is sufficient for cleaning. The best stain protection is a quick reaction. Regular after-care with the DRAENERT stone care set is recommended. This care set is suitable for polished, leathered and matt surfaces as well as for all types of stone (except oil shale).

AID MEASURES

- Use table mats or glass coasters in order to protect the stone.
- The most important rule is a quick reaction, means the cleaning of the surface.
- First Aid for all water-soluble stains is the watering after the stain has been wiped-off. (by putting a dripping wet sponge overnight on the stain) which will wash the color pigments into the depths. We recommend using distilled water for this procedure in order to prevent limescale deposits on the surface.
- Particularly soiled or stubborn stains can be cleaned with Basic Cleaner SR1 and grease stains with the Grease cleaner SR2. When using the grease cleaner afterwards always apply the stone primer Stain stop SS1. The grease cleaner is not allowed to be used on limestones and marbles as it would damage the polish.

ACID DAMAGES IN SOFT STONE

The above-described factory impregnation does not prevent acid damage! All calcareous rocks (marble, limestone, onyx, serpentinite) and the sodalite (hard rock) are acid-sensitive, this means they will get dull spots on the surface after just in a few minutes.

Please see the chapter regarding Acid sensitivity!

With the help of the **REPAIR SET**, small and mediumsized acid damages can be ground-off at the customer's premises. Please contact us for advice.



NAME	FACTORY CARE	REGULAR CARE	STAIN REMOVAL
Stone care set	Care for all natural stones	polished/matt/leathered surfaces	
Stain stop SS1	protection for all stones	matt/leathered surfaces	
Basic cleaner SR1			all water-soluble stains
Grease cleaner SR2			all grease stains on hard stones and oil slate - not suitable for lime stone, onyx and marble.
Oil slate care ÖP2	protection for oil slate	only for oil slate	
Repair-Set	for leathered surfaces only for marble and limestone		against acid spots



DAMAGES

BREAKAGE OF THE TOP

Massive mechanical stress or incorrect handling may cause an open fracture of the stone. Toppling during the transport, carrying at the edges or using the table as a seat may cause such damage. The resulting crack is open, visible and can be felt also from the underside of the stone top. In the event of such fracture, we will be happy to help you with repair suggestions.

EDGE CHIPPING

Natural stone is a very hard but brittle material. The edge of a table top is particularly vulnerable. Because of a careless placing of the top during the assembly may cause an edge chipping. Even striking the table edge with a glass bottle may cause such a chipping. Some damages may be repaired by filling them with shellac at site, others only by re-cutting in the factory.





DRAENERT HOTLINE FOR ALL REQUESTS ABOUT NATURAL STONE

We look forward to advising you on all aspects of natural stone. You are welcome to contact us as follows:

By email: sales@draenert.de By phone: +49-7545-2080

We hope you enjoy consulting DRAENERT natural stone furniture.

DRAENERT GMBH

STEIGWIESEN 3 88090 IMMENSTAAD/LAKE CONSTANCE GERMANY

FON +49 (0) 7545 - 2080 FAX +49 (0) 7545 - 20810 info@draenert.de www.draenert.com

