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All StoneSpecific cleaners are water-based, non-acidic, pH neutral and safe for every-day use. Each was scientifically formulated for a specific stone surface. Our cleaners contain small amounts of the specific sealer to reseal the stone as they clean by adding an additional thin layer of sealer to the basecoat.

The pH balance scale measures the acidity or alkalinity of a solution in a scale from 1 to 14. Neutral solutions are rated as a 7. From 7 the number increases with alkalinity and decreases with acidity. Each number from 7 (neutral) is 10x stronger than the previous number.

Muriatic Acid
Lemon Juice
Coffee
Vinegar

pH Neutral Cleaners
Ammonia

Stonespecific Cleaners + Resealers

Common Household Cleaners
Degreasers

Strippers
Bleach

1. TALC
2. GYPSUM
3. CALCITE
4. FLUORITE
5. APEXITE

Custom Building Products is the leading manufacturer of tile and stone installation products for surface preparation, setting, grouting and care.

For long lasting tile, stone and floor covering installations, use SuperiorBilt tools.
**Stone Trends**

As the popularity of natural stone installations grows each year; it also drives additional sales opportunities for care and maintenance products. The varieties of stone, the abundance of colors and textures, and its technical characteristics appeal to those seeking a premier building material for renovations, restorations or new construction. As more and more contractors, designers, architects and homeowners are using the rich look and textures of natural stone in new ways, it has become increasingly important for sales staff, employees, business owners, contractors and homeowners to understand the basic needs of caring for natural stone after installation.

**All Stone is Not Created Equal – Inside Stone**

How stone is created is important to understand, because the composition affects its density, absorption rate, hardness and its appearance. Ultimately, these characteristics determine how natural stone should be maintained to keep its beauty for life. Every region of our world is different; and therefore contains unique mineral deposits due to the Earth’s formation. All stones vary based on where they are quarried or excavated. The dimensional stones used in commercial applications fall into one of these categories:

**Silicas / Siliceous Stone**
- Silica is the most common mineral on Earth
- Generally hard stone
- Easy to maintain and very durable

**Carbonates / Calcareous Stone**
- Next most common rock-forming group
- Generally softer, more porous stone than silica
- Durable, but sensitive to acids (like acid-based cleaners)

Calcium carbonate combined with acid creates Carbon Dioxide:

\[
\text{CaCO}_3 + \text{acid} = \text{CO}_2 + \text{H}_2\text{O} + \text{Ca}^{++} \]

Because carbonates (marble, travertine or limestone) react to acid (acidic cleaners) to create carbon dioxide, the effects to the stone are permanent. The destruction of carbonates shows on the surface of stone as etching. Although the particles of stone cannot be recovered, they can be polished or refinished to match the finish of the stone.

**Igneous Stones**

Created above and below the Earth’s surface, these stones are commonly believed to have solidified from molten rock (called magma) under pressure. Underground, they are formed when magma becomes trapped in small pockets. As these pockets of magma slowly cool, the magma becomes dense igneous rocks. On the surface, when magma appears above the earth, it is called lava. As the lava quickly cools above ground, different varieties of igneous rocks form.

**GRANITE**
A coarse-grained siliceous-based stone of even texture composed chiefly of quartz and feldspar minerals. It usually contains small quantities of mica or hornblende. Crystallized at depth, granite masses are exposed at the earth’s surface by crustal movement or by the erosion of overlying rocks.
- Very hard material
- Easy to maintain
- Antimicrobial
- High density
- Low porosity, but susceptible to staining

**OTHER IGNEOUS STONES**
Quartz • Obsidian • Pummas

**Sedimentary Stones**

Created from a blend of organic materials; small pieces of our earth that have eroded, broken down through the action of glaciers, rivers, wind, oceans and plants. These sedimentary pieces include the skeletal remains of living organisms collected to form rock beds (carbonates). These stones have a variety of combinations:

**LIMESTONE**
Wholly or in large part composed of calcium carbonate. Commonly contains minerals and ancient creatures from seawater. Limestone texture varies from coarse to fine and does not show much graining or crystalline structure. It is ordinarily white but may be colored by impurities, iron oxide making it brown, yellow, or red and carbon making it blue, black, or gray.
- Varies in hardness
- Most susceptible to staining

**TRAVERTINE**
A variety of limestone and marble that contains holes formed from heat, pressure and water flowing through the stone. These holes are often filled with foreign materials such as cements or resins during the fabrication process to create a flat, polished surface. It is often beautifully colored and banded as a result of the presence of iron compounds or other (e.g., organic) impurities.

**OTHER SEDIMENTARY STONES**
Sandstone • Gypsum • Conglomerate

**Metamorphic Stones**

The result of the transformation of a pre-existing rock type, in a process called metamorphism, which means “change in form”. The precursor rock is subjected to extreme heat and pressure causing intense physical and/or chemical change. The precursor rock may be sedimentary rock, igneous rock or another older metamorphic rock. Metamorphic rocks make up a large part of the Earth’s crust and are classified by texture and by chemical and mineral assembly. They are also formed by the forces of molten rock into solid rock particularly at the place of contact between the magma and solid rock, where the temperatures are high.

**SLATE**
A fine-grained stone formed when sedimentary rocks such as shale (clay) is changed by great pressure. Slate splits into wide thin layers. Slate is intermediate in hardness between rocks composed of laminated; often flaky parallel layers of mica and shale.

**MARBLE**
Marble was once limestone, compacted by heat and pressure that re-crystallized into marble when mineral changes occurred. This produces the colors and veining seen in the stone.
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- Very hard material
- Easy to maintain
- Antimicrobial
- High density
- Low porosity, but susceptible to staining

**Other Igneous Stones**

Quartz • Obsidian • Pummas

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**Limestone**

Wholly or in large part composed of calcium carbonate. Commonly contains minerals and ancient creatures from seawater. Limestone texture varies from coarse to fine and does not show much graining or crystalline structure. It is ordinarily white but may be colored by impurities, iron oxide making it brown, yellow, or red and carbon making it blue, black, or gray.

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Marble was once limestone, compacted by heat and pressure that re-crystallized into marble when mineral changes occurred. This produces the colors and veining seen in the stone.
Hardness is one measure of the strength of stone. The hardness of a stone is relative to the stone’s density. Density can be a factor when considering stone types for a particular project installation. For example, a polished marble can be a beautiful addition to a residential home but not a shopping mall floor due to the extensive care and maintenance required. The high foot traffic of a mall can eventually dull the surface of a polished marble.

Stones hardness can be determined very easily. If a stone can be scratched by a known mineral from the Mohs Hardness Scale list, it is softer than that mineral. If it in turn will scratch another known mineral, then it is harder than that mineral.

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Scratch Test

There is an easy, practical way to test the hardness of a stone through a scratch test. You may apply this test on the top or back sides of a piece of stone. (Warning: do not conduct this test on the surface of an installed stone – it may ruin the stone.) Using a box knife steel blade, simply score it across the stone’s surface. Do not apply hard pressure.

A stone categorized as granite (quartz/feldspar) will not typically scratch. Because granite has a higher tolerance to scratching, it is widely used on countertops.

Polished

A glossy, highly reflective surface
- Surface is very smooth and not very porous
- Polished crystals bring out brilliant colors and grains (400 to 3500 grit to polish stone)
- Shine comes from the natural reflection of the stone’s crystals
- Polish can wear away due to heavy foot traffic and improper maintenance

Tumbled

A slightly rough texture that is achieved by tumbling small pieces of marble, limestone or granite to achieve an old-world/worn appearance.

Honed

A flat matte to low sheen gloss
- Surface is very smooth, but very porous
- Many more and wider gaps in surface than polished stone
- Medium density
- Commonly used in low traffic areas or for aesthetics
- Colors are not as vibrant as a polished stone

Other Textured Surfaces

SAND BLENCHED Pressurized flow of sand and water that results in a matte finish
FLAMED Rough surface developed through intense heat
BUSH-HAMMERED Pounding action of hammer develops textured surface. Reduces stone’s color tones.
Stone Hardness

The Density Factor

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Fabricated Stone Surfaces

Rough stone blocks are extracted from quarries around the world and then shipped to a fabrication plant. The stone blocks are put through a series of processing steps, depending upon the end product desired. These steps include cutting the block into thin slabs, polishing the slabs, and cutting thin slabs into floor tiles or veneer for building exteriors (curtain).

Equipment used in fabricating stone includes diamond wire saws, large blade saws with diamond inserts, and saws durable enough to cut thick slabs for monuments. Computer-controlled machines are capable of easily cutting intricate shapes to satisfy the needs of architects and designers.

The fabrication of the stone will affect its porosity and its appearance. There are many types of textures applied or fabricated to dimensional stone surfaces. This list shows some of the more popularly used fabrication methods applied to stone.

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Sealers

All Stone Sealers

The pores and capillaries of stone affect the amount of water that can evaporate through stone – also known as moisture vapor. Moisture vapor is carried from the substrate through the stone to keep the substrate dry through a process referred to as moisture vapor transmission (MVT). MVT allows the stone to "breathe" naturally, reducing the possibility of mold growth, damage to the substrate, or stone discoloration.

All sealers contain two parts – carriers and actives – in varying amounts.

Carriers

Carriers contribute to the amount of actives delivered or absorbed into a substrate. With advances in micro- and nano-emulsion technology, water-based sealers are as effective or surpass some characteristics of solvent-based sealers. Once a carrier has delivered the actives below the surface it evaporates, leaving only the active material to protect the stone.

Water-Based Chemicals
- Easy to use
- Non-flammable
- No toxic fumes

Solvent-Based Chemicals
- Hydrocarbons
- Flammable
- Hazardous

Actives

Actives are the components that adhere to the surface of the substrate, changing the surface tension of the stone, thus preventing staining agents from penetrating into the stone.

Silicones
- Water repellency
- UV stability
- Water beading
- Less oil resistant

Fluorocarbons
- Great on oil repellency
- Invisible
- Water repellency
- Less UV stable

Resins/Waxes
- Repels water & oil
- Reduces MVT
- Alters appearance

Common Trade Names

There are many different trade terms for stone sealers creating confusion among homeowners, designers, architects and contractors.

Penetrating or Impregnating Sealers
- Chemical and mineral agents absorbed into pores/capillaries of material on the surface
- Modifies physical properties to resist stains
- Allows MVT

Finishing or Topical Sealers
- Film-forming surface coatings across the top of the surface
- Acrylics
- Resins
- Waxes
- Can close pores and reduce MVT

Enhancers
- Highlights natural colors of unpolished, textured and faded stone or masonry
- Some enhancers seal, others may not
- Allows MVT

Note

Finishing sealers create a topical finish, covering the stone’s surface, to help repel water and oil. However, based on the job application or improperly-prepared installations, some finishing sealers can trap moisture or inhibit MVT. Most penetrating sealers do not inhibit MVT. Be aware of the type of application, and read all manufacturers’ directions, when selecting a sealer.

Stone Specific

Given the popularity of natural stone and the many complexities of its varied compositions, the scientists in Custom’s research and development laboratory sought the IDEAL sealer for stone. This sealer would be:

High Performance Sealers
- Water-based, environmentally safe
- Have no toxic fumes
- Be non-flammable
- Prevent a variety of stains – both oil and water-based

Custom’s efforts to understand the science of stone resulted in StoneSpecific – high performance sealers and cleaners formulated for different stone types and finishes.

Microscopic Detail

Under powerful magnification, it’s easy to see the differences in stone types and finishes.

General Purpose

A general purpose sealer contains many various sealing molecules – some of which will penetrate and bond but many won’t and will be wiped or washed away.

Polished Granite

Our Polished Granite Sealer is formulated with penetrating molecules to help the stone wet out and allow the sealing molecules to penetrate both the high surface tension and the high density of the granite stone. This formula contains the right amount of sealing molecules that will chemically bond with the granite, therefore maximizing protection.

Polished Marble

Our Polished Marble, Travertine and Limestone Sealer also contains penetrating sealer to get through the polished finish, but is formulated with different sealing molecules specifically for these stones.

Honed Travertine

Finally, our Tumbled/Honed Marble, Travertine, Limestone and Slate Sealer is formulated with almost no penetrating molecules because these finishes create a very low surface tension. Yet the concentration of sealing molecules was boosted to adjust for the increase in gaps and cavities that need to be sealed.
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