

Sealing Sandstone

Sandstone, is so often sealed using penetrating systems, and therefore is not always best protected with this technology. In many cases a topical or coating sealer is the better choice. The reason for this lies in the fact that there are many different types of sandstone. To accurately assess the sealer required you must firstly understand the way sandstone is formed and the different resulting types.

Sandstone is a sedimentary stone. This means that it is formed under pressure without heat. It is clastic meaning it is composed of fragments of other rocks mainly sand-sized minerals or small grains of other rocks. The main minerals are quartz (silica) and or feldspar (a silicate of mainly soda or potash). The grains are cemented together with compounds such as calcite (calcium carbonate), iron oxides (typically from clays) and silica.

Sandstone forms during two principal stages

A layer of sand forms as a result of sedimentation from water (lakes, rivers) or from air as in a desert.

Once the sand has accumulated the particles are cemented together by the precipitation of minerals (calcium carbonate being the most common) within the pore spaces between the grains.

There are 3 main groups of sandstone.

Arkosic - characterised by having a high amount of feldspar usually greater than 25%;

Quartzose - which have a high content of quartz greater than 90%; and

Argillaceous - which contain significant amounts of clay or silt.

It is the type of mineral and cementing agent that most influences the particular sandstone performance as well influencing how it should be sealed. Sandstone with a high feldspar or silica content is going to be more chemical resistant, harder and hence more durable. However it is the type of cementing mineral that most influences performance. For example the hardest most chemical resistant sandstone is one where a high content of silica is cemented with silica. A softer stone will have a significant quantity of clay cemented with the more common cement calcium carbonate. The density and texture of the stone

is also related to its chemistry. Sandstone with high silica in both grains and cement is going to be older and hence exposed to greater pressure over a longer period of time. This creates a denser stone with finer grain size whereas a stone with high clay and calcium content is younger, more porous with a larger more uneven grain size.

All of these factors that contribute to the formation of sandstone directly effect how a sealer technology will perform. For example dense sandstone made and cemented with silica is going to be less porous making the job of a sealer easier. The grain sizes are finer, more even and tightly cemented together making it easier for film forming sealers to bond. However the same sealer may struggle to perform on coarser grained stone where the greater surface texture and grain size variation makes it difficult for the sealer to bond. Factors such as more extreme variation of expansion and contraction between the varying grain sizes and types of minerals (silica and calcium have completely different rates of expansion and contraction) also come into play in these sandstones adversely affecting sealer performance.

So which sealers are most effective on sandstone?

In most cases penetrating type sealers work best. However I am not a fan of the lower cost silicate sealers commonly used by the industry. Silicates work by creating a salt crystal (either potassium or sodium) that plugs the pores of the stone. They work best where there is a good quantity of calcium to act as a reactive catalyst. In sandstone although calcium is present as a cement in many types of sandstone it is not present in all therefore making silicate sealers less effective in a percentage of the sandstone family. Silicate sealers do not have a high threshold for temperature or expansion making them less effective on the more textured unevenly grained sandstones especially those with high calcium content.

It is the industry's premium siloxane, silanes and fluoro based sealers that best meet the characteristics of sandstone.

These all have good resistance to expansion variations as well as a good ability to form within a reasonable variation

in particle size. These can be carried in either water (Aqua Mix Sealers Choice Gold) or solvent (Aqua Mix Ultra Solv) and for the main it is the water based premium sealers that work best on sandstone. Solvent carriers have very low surface tension which enhances their ability to penetrate into dense high energy surfaces. However when applied to a sandstone which has a high porosity the combination of high porosity and low surface tension means the sealer travels too deeply into the stone. To get the sealer to sit just below the surface where it performs best you need to apply a very liberal amount of a solvent sealer as compared to the higher energy water based sealer.

However there is another sealer family that is also recommended for some sandstone.

These are topical or coating sealers. In many cases the more textured larger grained sandstone don't just suffer from below surface staining due to porosity, they also suffer from surface soiling caused by the texture. For example graffiti can be very difficult to completely remove from textured sandstone. A penetrating sealer gives no surface protection hence the need in these cases for a surface sealer.

In most cases these are premium acrylic based sealers that completely coat the surface of the stone (Aqua Mix Seal & Finish Low Sheen). By doing so they keep contaminants on the surface and out of the grains where they are easily removed. The down side to this technology is that the sealer becomes the walking or wearing surface and being softer than the stone will need more frequent reapplication than a penetrating sealer. Water based coatings are best as they have higher rates of vapour transmission (extremely important on a high porosity stone such as sandstone) than those carried by solvents and they tend not to alter the natural colour of the stone where solvents invariably do.

The type of sandstone can also have a large affect on the way it should be maintained after and before any sealing. For example in many cases a light acid wash is used after installation to remove any grout or pointing residue. However acid can damage many types of sandstone contrary to what many people believe. The most common mineral cementing the grains is calcium carbonate and acid will damage this almost immediately. Many types of sandstone have a red vein or hue which is created by iron oxide. In some cases this is soluble and easily attacked by

acid the result being a bleaching of the original colour. The use of ph neutral cleaners (Aqua Mix Concentrated Stone & Tile Cleaner) and high alkaline cleaners (Aqua Mix Stone Deep Clean or 1&2 Deep Clean) is the safest way to maintain and or prepare sandstone for sealing.

In conclusion not all sandstone is composed of the same minerals. The different combinations of base minerals and cements create different sandstones with completely different characteristics. The high silica and or feldspar stones cemented with silica will be harder, finer grained in the main and will even take a polish whereas the stones composed of clay, or lower quantities of silica or feldspar cemented with calcium carbonate will be more textured, softer and more porous. To offer the best sealer performance across such a wide range of characteristics you need to embrace and consider both penetrating and coating technology.

Book Now!
Limited spots available.

Aqua Mix Australia - Independent Applicator Courses Sept '06



Aqua Mix Australia will be holding their annual 2-Day Independent Applicator Courses in Sydney in September 2006. Receive specialised hands-on training in sealing, cleaning and problem solving for tile, stone and grout.

For more information on 2006 Courses, contact A'ngie Kokkiliaris on 02 9521 4000 or email anj@aquamix.com.au or visit our website www.aquamix.com.au



We are Moving!

Due to our growth we are relocating to bigger premises on 21 August 2006.

The new facility will have bigger warehouse & office areas, dedicated training rooms for tile & stone care courses plus a product testing facility.

Address: Unit 7, 38 Waratah Street, Kirrawee NSW 2232

Postal Address: PO Box 3001, Kirrawee NSW 2232

Phone: 02 9521 4000 **Fax:** 02 9521 5222

Aqua Mix Trained Independent Care & Maintenance Applicator Course – Sydney NSW – September 2006

Become one of a very select group of **Aqua Mix Trained Independent Care & Maintenance Applicator** with the tools and know-how to specialize in trouble shooting, sealing, cleaning and refinishing of tile, natural stone and grout surfaces for both residential and commercial installations.

Aqua Mix is an industry leader in hard surface cleaning and maintenance products. We are uniquely qualified to train you or a designated employee, to take advantage of this business enhancement by becoming an **Aqua Mix Trained Independent Care & Maintenance Applicator**.

This comprehensive classroom and hands-on workshop is designed and taught by professionals in the Care and Maintenance business. The curriculum includes the newest techniques and information on the latest products for hard surface cleaning and maintenance. Instructors will provide the practical step-by-step training needed to begin an applicator business or to expand the services of your existing business.

The 2 Day Advance Course includes:

<p>Ceramic Tile & Porcelain</p> <ul style="list-style-type: none"> • Tile Identification & Manufacture • Cleaning & Maintenance • Sealing • Wax Removal • Stain Removal 	<p>Grout</p> <ul style="list-style-type: none"> • Cleaning & Maintenance • Sealing • Re-colouring • Stain Removal 	<p>Natural Stone</p> <ul style="list-style-type: none"> • Natural Stone Identification • Cleaning & Maintenance • Sealing • Stain Removal • Natural Stone Restoration (Re-polishing & Honing)
<p>Product Knowledge On...</p> <ul style="list-style-type: none"> • Sealers • Cleaners • Problem Solvers • Floor Finishes • Hands-on Application Methods 	<p>Marketing</p> <ul style="list-style-type: none"> • Business Development Strategies • Sales Techniques • Advertising 	

Aqua Mix Now Offers IICRC Continuing Education Credits (CEC)



Aqua Mix, the industry leader in delivering innovative, water-based products for stone, tile, masonry, and grout, announces that its Independent Applicator Program (IAP) now offers IICRC Continuing Education Credits (CECs) for IICRC registered technicians in the cleaning and restoration industry.

Aqua Mix's IAP training program received CEC approval by the Institute of Inspection, Cleaning and Restoration Certification (IICRC). The IICRC is a nonprofit certifying body for the inspection, cleaning and restoration industry representing over 3,300 certified firms and 27,590 certified technicians in eleven countries. The IICRC, with participation from the entire industry, sets standards for inspection, cleaning and restoration. By attending Aqua Mix's IAP Training Program registered technicians will qualify to earn two CEC units.

Course Dates - September 2006

~~IAP Course 1~~ **SOLD OUT** Thursday 7th – Friday 8th

~~IAP Course 2~~ **SOLD OUT** Wednesday 13th – Thursday 14th

~~IAP Course 3~~ **SOLD OUT** Monday 11th – Tuesday 12th

IAP Course 4: Friday 15th – Saturday 16th

Testimonials

"Aqua Mix have set the standard. They are the University & everyone else is the High School. Before the course, we thought we knew everything. Now we do." Shaun Roberts, The Marble Man, Mermaid Waters QLD

"The most comprehensive tile & stone course I have ever attended. With our new knowledge & skills, we have now added a new division to our company to do cleaning & sealing" Marlon Marescia, Tileco Tilers, Baulkham Hills NSW

"A professional & eye opening course. It had all the answers to all my question. I now have the confidence & knowledge to take on all jobs" Tony Morrissey, Osprey Floor Care, Box Hill North VIC

Instructors

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Scott Worthington

Technical Director
Aqua Mix – Asia Pacific

Bill Tran

Vice President Training & Technical Dept.
Aqua Mix Inc. (USA)

Frank Toms

Director International Sales
Aqua Mix Inc. (USA)





Aqua Mix Trained Independent Care & Maintenance Applicator Course – Sydney NSW – September 2006

Applicants Name: _____ Date: _____
Company Name: _____
Address: _____
Suburb: _____ State: _____ Post Code: _____
Phone: _____ Fax: _____ Mobile: _____
E-mail: _____ Website: _____

1. How did you hear about our seminar? _____
2. How long have you been in the tile industry or hard surface business? _____
4. What do you or your company specialize in? _____
5. What do wish to gain from this seminar? _____
7. Where do you plan to offer this new service? _____
8. Do you currently work with the Aqua Mix Products? _____
9. What class dates would you like to attend? **(Please number in order of preference – eg: 1, 2, 3, 4)**
Course allocations will be on a first paid first choice basis.

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SOLD OUT Course 3: Wed 13th – Thurs 14th September 2006

SOLD OUT Course 2: Mon 11th – Tues 12th September 2006

IAP Course 4: Fri 15th – Sat 16th September 2006

10. If you require accommodation, please contact on of the following Hotels:

- A. **Quest Apartments**, Cronulla Beach Ph: 02 8536 3600 B. **Rydges Cronulla Beach** Ph: 02 9527 3100
C. **Cronulla Motor Inn**, Cronulla Ph: 02 9523 6800 D. **Metro Inn**, Miranda Ph: 02 9525 7577
(Shuttle bus will depart outside Quest Apartments at 8:00am SHARP daily for transport to Course facility)

Signature: _____ Date: _____

Cost

\$390.00 (plus GST)
Includes: Training & Technical Manual, Morning & Afternoon Tea, Lunch.
Should a cancellation occur, a \$100.00 (plus GST) cancellation fee will apply.

Payment

Payment must be received **in full** at time of booking to confirm your place.
Course allocations will be on a first paid first choice basis.

Please forward your completed application form and full payment (cheque/money order or direct deposit) to:

Aqua Mix (Aust)
PO Box 3001
Kirrawee NSW 2232

Bank Details for payment

Bank ANZ Sutherland NSW
BSB 012-430
Account Number 108 748 563
Account Name Aqua Mix (Aust)

(Please fax confirmation of transaction to 02 9521 5222)

For more information contact

A'ngie Kokkiliaris at Aqua Mix (Aust) on 02 9521 4000
or 0413 059 935 or email info@aquamix.com.au
www.aquamix.com.au