

New Plaster Guide



This guide is for pool owners who are considering to either plaster a pool which is already plaster or plaster a pool which is painted.



AquaThORITY
POOLS & SPAS, LLC

the clear choice in pool care



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Table of Contents

Pool Plaster Introduction	2	Water Source	5
Nature of Water	2	Filling Instructions	5
Importance of Water to Plaster . . .	2	New Plaster Care Instructions . . .	6
Nature of Plaster	3	Critical Do's and Don'ts	6
Pop-Offs	3	Brushing Your Newly Plastered Pool	6
Types of Plaster	4	Day-by-Day Water Chemistry Instructions	7
Plastering a Painted Pool	4		
New Plaster Water Filling Instructions	5		



Nature of Plaster

Because plastered pools and spas are, and need to be, constantly submerged in water they are affected by the chemistry of the water more than any other factor or variable. This constant interactive relationship between the mineral content of the plaster surface and the mineral content of the pool water produces a reaction.

Over time, this reaction will have an impact on the condition and life of the plaster surface: in some cases these reactions cause minor cosmetic changes in the plaster, however, in many cases these reactions can have a more corrosive effect, even causing plaster to deteriorate.

While plaster is the best material for the surface of a swimming pool because it's smooth to the touch of feet and hands, durable with a long-life expectancy, resistant to impact and abrasion, and readily repaired,

cleaned and maintained among other features; it's not a perfect material as it has inherent traits which have a bearing upon its finish.

Plaster is not flawless because it is:

- compounded from raw mined minerals (cement, marble dust, and aggregates)
- applied over materials (plaster or concrete) which are inconsistent in surface, shape and condition
- hand-troweled to as smooth a surface as possible but will still exhibit inconsistencies in its finish
- not purely white and inherently inconsistent in color tone

Your new plaster can:

- look mottled (blotchy) and streaky for a period of time as it cures long-term
- have small cracks known as "checks", "shrinkage" or "crazed cracking" which pose no threat to its life
- be susceptible to stains, discoloration, and spotting caused by foreign impurities, water chemistry, etc.
- roughen if not properly brushed, and can deteriorate if the water chemistry is ignored or unstable

Pop-Offs

Pop-offs is a condition exclusive to plaster. Although uncommon, it's a condition whereby the existing plaster has become separated from the shell. While evidence of such can exist as bubbles and cracks, pop-offs may not be discovered until the pool has been emptied and the surface has been inspected and tap-tested listening for hollow sound. Upon discovery, the hollow plaster spots need to be excavated and then patched with new plaster, in the case of repair, or entirely plastered, in the case of renovation.

Introduction

The purpose of this New Plaster Guide is to inform and educate the pool owner who is considering to either plaster a pool surface which is already plaster or to plaster a pool surface which was not previously plaster and was most likely painted.

While a plaster pool surface is superior in finish and performance as compared to all other pool surfaces, it has its own set of rules which need to be known and followed to ensure an enduring and

serviceable lifespan which should exceed 10 years and, in many cases, last as many as 15 years or more.

The greatest influence on the welfare and lifespan of a plaster surface is the pool owner's diligence in monitoring and controlling the pool's water chemistry. And while the last section of this guide, Day-by-Day Water Chemistry Instructions, presents concise instructions, additional water chemistry information is presented in our Pool Water Chemistry Guide found at our web site: www.aquathority.com.

Nature of Water

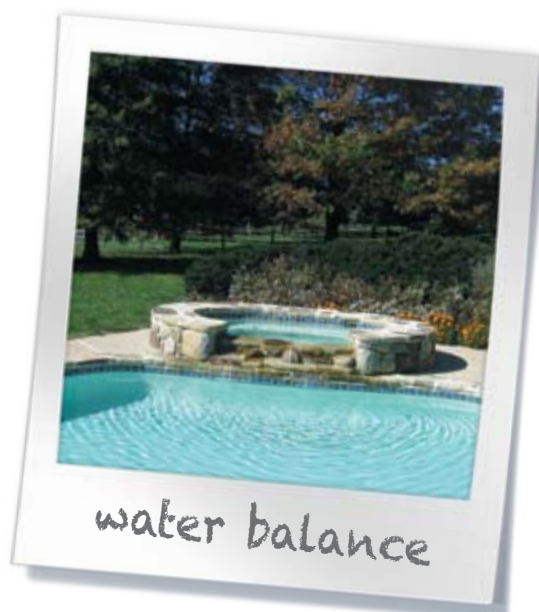
Water has an appetite which is affected by its temperature among other variables. If water is fed the proper types and amounts of food (balancing products) it will become full and satisfied (stable). Conversely, if the water is deprived or starved, it will become hungry and aggressively destructive as it leeches its food from the plaster.

It's essential to understand that pool water which is unbalanced and unstable will destroy a pool's plaster finish whereas pool water which is balanced and stable will preserve a plaster's finish.

Importance of Water to Plaster

Plaster needs to be submerged in water in order to thrive and survive. Essentially, properly balanced water protects the plaster finish from the ill-effects of its environment such as the sun, weather and debris: all of which can cause plaster to dry-out, stain, and deteriorate.

Therefore, it is imperative that a freshly plastered pool is filled with water as soon and as quickly as possible. These matters and procedures are addressed in the section of this guide entitled New Plaster Water Filling Instructions.



Types of Plaster

White Plaster: *white marble aggregate (sand) and white cement (ratio of 2/1) and water.*

Applied at a thickness of about a half-inch (.5"), white plaster has been and remains the standard and most popular finish for pools and spas. Its simple combination of white cement, white marble aggregate and water make it an economical choice as well as a desirable surface for swimmers because of its smooth and durable surface.

Colored Plaster: *white marble aggregate and white cement (ratio of 2/1), pigment, and water.*

By adding a pigment to the white sand, white cement and water during the mixing process, plaster can be colored. It's important to understand the unpredictable and flawed traits of colored plaster: mottling, unevenness in color, variations in shading and density, pigment stains, and the inevitable fading over time will occur with colored plaster.

Quartz Plaster: *quartz aggregate and white cement (ratio of 2/1), pigment, if applicable, and water.*

Created by replacing the white sand used in white plaster with a quartz aggregate, quartz plaster exhibits the aggregate's flecks of colored quartz, polymers and ceramics throughout its half-inch (.5") thick finish. Offering a range of colors with its aggregates as well as pigmentation (if applicable), quartz plaster is a more durable surface due to its quartz content. Like colored plaster, pigmented quartz plaster will be inconsistent in color and change in appearance over time.

Pebble Plaster: *pebble aggregate and white cement (ratio of 2/1), pigment, if applicable, and water.*

Pebble plaster is made by replacing the white sand used in white plaster with a pebble aggregate (smooth river pebbles of varying colors and sizes) giving the plaster a pebble finish throughout. Offering a broad range of colors with its pebbles as well as pigmentation (if applicable), the three-quarter-inch (.75") finish is a more durable surface due to the pebbles. Like colored plaster, pigmented pebble plaster will be inconsistent in color and change in appearance over time.

Bead Plaster: *glass bead aggregate and white cement (ratio of 2/1), pigment, if applicable, and water.*

Bead plaster is made by replacing the white sand used in white plaster with a glass bead aggregate (rounded glass beads of varying colors and sizes) giving the plaster a glass bead finish throughout. Offering a broad range of colors with its glass beads as well as pigmentation (if applicable), the three-quarter-inch (.75") thick finish is a more durable surface due to the glass beads. Like colored plaster, pigmented bead plaster will be inconsistent in color and change in appearance over time. *NOTE: for more plaster information please visit National Plasterers Council's website (npconline.com).*

Plastering a Painted Pool

If your pool is painted plaster or concrete and you are interested in upgrading the finish to plaster, then the paint needs to be removed from the existing surface because the paint is a barrier which will prevent the new plaster from adhering to the surface.

The 2 most common means of paint removal are sand blasting and water blasting with the latter being cleaner, faster and eco-friendly and, therefore, today's preferred method of paint removal. AquaThority will arrange and coordinate the water blasting which takes one day.



New Plaster Water Filling Instructions

Although relatively simple, there are important facts to know, and procedures to follow, when filling a freshly plastered pool with water. For example, it is imperative that the flow of water is not stopped or paused when filling your newly plastered pool until the pool is full (above the tile) because disruption in the water flow can create rings in the plaster at the point at which the water rests.

Water Source

The National Plasterers Council implores pool owners to use clean, potable water when filling a plastered pool because water has a major impact on the welfare of the plaster finish. Typically, there are 3 sources for filling a pool: on-site well water via garden hose, public water via garden hose, and trucked-in water from a reputable source.

On-site well water via garden hose:

The deterring issues with on-site water via garden hose include well capacity, rate of water flow, burden on pump motor, water mineral content and duration of pool fill which can take many days.

Public water via garden hose:

The deterring issues with public water via garden hose include rate of water flow and duration of pool fill which, depending upon the pool size, can take 3 days or more.

Trucked-in water:

The only deterring issue for trucked-in water is cost because, depending upon logistics, the cost will be anywhere from \$.036 per gallon to \$.043 per gallon (\$900 to \$1,075 for a 25,000 gallon pool).

The favorable reason for trucked-in water is that the pool-fill will be complete in hours and subsequently the new plaster will be protected from the ill-effects of exposure as addressed in our in the previous section Nature of Plaster.

Filling Instructions

WARNING: *Do not stop or pause the flow of water when filling your newly plastered pool until the pool is full. Disruption in the water flow can create rings in the plaster at the point at which the water rests.*

NOTE: *At no time should any person or pets be allowed in the pool during the filling process. Typically, swimming can resume 48 hours after the pool has been filled with water.*

Begin filling with a garden hose:

Upon the completion of the plaster installation we will begin the pool filling process by securing a clean rag to the end of your garden hose (to prevent damage to the new plaster) and placing it in the deep-end of your pool with the valve wide-open. Your garden hose must remain open and flowing into the pool during the entire filling process even if water is being trucked-in. Do not close-off the water until the pool is full.

Trucked-in water:

If water is being provided via truck (which we highly recommend) then 24 inches of water should be in the deep-end (as a water cushion) prior to the arrival of the truck water. This water cushion will be accomplished



as described in the previous section “begin filling with a garden hose”. Your garden hose must remain open and flowing into the pool during the entire truck water filling process.

Water level:

The water flow to the pool should not stop or pause until the water has risen above the tile line and, ideally, filled to the middle of the skimmer.

Start-up of pool filtration system:

Once the pool is full, an AquaThurity technician will return to start-up the filtration system and, on that occasion, add a quart of a stain and scale sequestering agent as recommended by the National Plasterers Council. The filtration system should run continuously for the first 72 hours.

New Plaster Care Instructions

The purpose of these New Plaster Care Instructions is to inform and educate you about the do’s and don’ts of new plaster. The greatest bearing on the welfare of a newly plastered pool’s surface is the pool owner’s diligence in brushing the plaster surface as presented in this guide as well as regular monitoring and controlling of the pool’s water chemistry. What follows are the essential new plaster care basics.

NOTE: Typically, swimming can resume 48 hours after the pool has been filled with water.

Critical Do’s and Don’ts

This punch list of do’s and don’ts and brushing instructions are paramount to the plaster curing and hydration process. Newly installed plaster begins to hydrate immediately and will do the majority of its hydration for about 28 days thereafter. It’s during this 4 week period that your new plaster is most susceptible to staining, scaling and discoloration.

Critical do’s:

- 1 daily brushing (details follow)
- 2 adjust water chemistry (details follow)
- 3 run the filtration system continuously for the first 72 hours
- 4 always follow chemical product label instructions

Critical don’ts:

- 1 bare feet only (no shoes, flippers, etc.) for the first 2 weeks
- 2 no pool cleaning devices (Polaris, Ray-Vac, etc.) for the first 2 weeks
- 3 no dogs, pets or objects which are hard for the first 2 weeks
- 4 do not run the pool heater for the first 2 weeks
- 5 do not add salt for 28 days (for chlorine generator systems only)

Brushing Your Newly Plastered Pool

- 1 begin brushing after your pool is filled and the filtration system is operating
- 2 brush the walls and floor in a downward motion towards the bottom drain
- 3 use a non-metal bristle pool brush attached to a telescopic pole
- 4 brush 2 times a day for 2 weeks (frequent brushing will promote a smoother finish/surface)
- 5 do not scrub, just brush lightly (should take no more than 15 to 20 minutes)
- 6 do not worry about the hard-to-get spots; brush those spots with a hand brush when swimming



Day-by-Day Water Chemistry Instructions

Day 1 (the day after pool fill)

- filtration system must be running and remain running for the first 72 hours
- brush pool twice (morning and then afternoon or evening)

1: Alkalinity level

Test and adjust alkalinity

- test alkalinity and adjust to 80 ppm to 120 ppm
 - proper alkalinity level helps stabilize pH
- Low alkalinity will cause volatility with your pH level
- add alkalinity increaser (sodium bicarbonate) to increase alkalinity

High alkalinity will cause your pH level to be rigidly fixed and may cause scale and cloudiness

- add muriatic acid or sodium bisulfate to decrease alkalinity
- or drain and replace some of pool water to decrease alkalinity

2: pH level

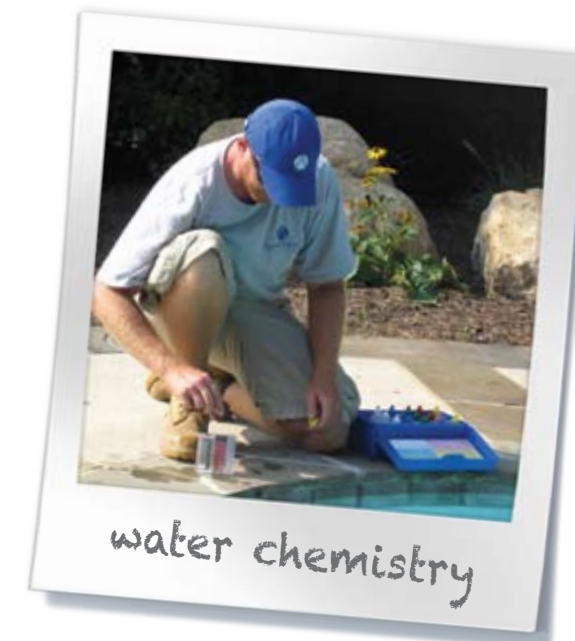
Test and adjust pH

- test pH and adjust level to 7.2 to 7.6
- Low pH means that your water is too acidic
- add sodium carbonate to increase pH level

High pH means that your water needs acid

- add pre-diluted muriatic acid (31-33% Hydrochloric acid) to decrease pH level

NOTE: do not use granular based “pH down” products; they can discolor plaster where they rest



Day 2

- filtration system must be running and remain running for the first 72 hours
- brush pool twice (morning and then afternoon or evening)
- typically, swimming can resume 48 hours after the pool has been filled with water

1: Alkalinity level - same instructions as Day 1

2: pH level - same instructions as Day 1

3: Calcium hardness (aka: total hardness)

Test and adjust calcium hardness:

- once alkalinity and pH are in-range, calcium hardness needs to be adjusted
- test calcium hardness and adjust to 275 ppm to 400 ppm

Low calcium water may leech calcium from the plaster and cause roughness

- add calcium chloride to increase calcium hardness

High calcium water (rare) may cause scale formation and cloudy water

- drain and replace some of the pool water to decrease calcium hardness



Day 3

- filtration system must be running and remain running for the first 72 hours
- brush pool twice (morning and then afternoon or evening)

1: Alkalinity level - same instructions as Day 1

2: pH level - same instructions as Day 1

3: Calcium hardness- same instructions as Day 2

4: Chlorine level

Test and adjust chlorine:- add chlorine (in tablet or liquid form) to achieve an ideal level of 1.5 to 2.0 ppm

NOTE: we discourage use of granular chlorine products; they can cause plaster discolor where they rest

Day 4

- brush pool twice (morning and then afternoon or evening)
- you can revert to your normal filtration operating routine; we recommend 6:00 a.m. to 10:00 a.m., and 6:00 p.m. to 10:00 p.m., for a total of 8 hours in a 24 hour period

1: Alkalinity level - same instructions as Day 1

2: pH level - same instructions as Day 1

3: Calcium hardness - same instructions as Day 2

4: Chlorine level - same instructions as Day 3

5: Cyanuric acid level

Test and adjust cyanuric acid:

- cyanuric acid, a chlorine stabilizer, should ideally be 50 ppm

Low cyanuric acid can cause the chlorine to be consumed by the sun's ultraviolet rays

- add cyanuric acid to achieve desired level

High cyanuric acid can bind the chlorine and render it ineffective

- drain and replace some of the pool water to decrease cyanuric acid

Day 5 through Day 28

1: Alkalinity level - same instructions as Day 1

2: pH level - same instructions as Day 1

3: Calcium hardness - same instructions as Day 2

4: Chlorine level - same instructions as Day 3

5: Cyanuric acid level - same instructions as Day 4

NOTE: you may resume vacuuming and heating your pool after 2 weeks.

Additional Informative Guides

Please reference these additional informative AquaThORITY guides at www.aquathority.com or request a hardcopy from our office.

- Pool Plaster Guide
- Pool Renovation Guide
- Pool Safety Guide
- Pool Water Chemistry Guide



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