

# Acid Startups for Plaster Pools

*onBalance – Que Hales, Doug Latta and Kim Skinner*

In response to “Pool Startup Chemistry for Plaster,” some service techs have stated that they have had favorable results performing the “acid” startup; with the plaster remaining smooth and the white blotchy deposit being removed on new colored plaster jobs. Yes, that can be true. There are various situations where an acid startup will appear to (and can) improve the initial aesthetic appearance of new plaster.

If the material and workmanship of a new plaster job is of high quality, if the pool isn't filled too soon, and if the acid startup is performed properly, there is little damage done to the plaster surface. Our study on Acid Startups determined that under these conditions only about 60 ppm of calcium is removed from the surface, as opposed to less than 10 ppm when good plaster is exposed to ideal startup chemistry water. That 60 ppm loss is not enough to make a noticeable visible difference. As stated in our prior article, it required a magnification of 40X to determine that the surface had been slightly affected. To the visible eye and touch, the plaster was very smooth and not discolored. However, the undeniable loss of surface calcium and resultant porosity will have an inevitable effect months down the road, and that accelerated deterioration of surface quality will likely not even be attributed to the original startup chemistry. It is usually then (incorrectly) attributed to current water chemistry conditions.

Also, when evaluating a new plaster surface undergoing acidic treatment such as an acid startup, keep in mind that when aggressive water is dissolving some plaster material, the surface can have a silky or slimy feel to it and make it seem like the surface is smoother than it really is.

There are occasional situations when the workmanship of a plaster job was done poorly, or that the tap water was slightly aggressive. That will usually result in some cement material being removed from the plaster surface (while filling) and subsequently the formation of plaster dust all over the plaster surface. As you know, the plaster dust begins to adhere to the plaster surface. Usually the simplest way to remove it is with an Acid startup or so-called zero alkalinity treatment. If that process is performed properly, the hope is that the plaster dust will be dissolved off the surface, possibly without harming the original plaster surface. It all depends on how much acid is added.

Of course, white plaster dust sticking on the walls and floor of a dark colored plaster job is far more noticeable, and the acid treatment will seem like the best option to resolve or mitigate.

There are other variables to consider when judging the merits of an acid startup. How much acid is being added? Hopefully, it is the right amount to barely neutralize the alkalinity of the pool water, so the pH does not go below 4.5. Or is it too much, where more acid is added than is necessary? Unfortunately, the over-simplified program of adding four gallons of acid to ten thousand gallons of water is often recommended in our

industry. It is important to know what the total alkalinity is of the pool water. Just two gallons of 31.5% muriatic acid will neutralize 100 ppm of alkalinity in 10,000 gallons of water. If too much acid is added, the resultant pH goes below 4.5, which is known as “mineral acidity.”

And how much time elapses before the pool water is returned to being balanced? The longer the water has a pH of 4.5, the more material is dissolved from the surface. As our study indicated, if the acid treatment is extended to 7 days, then at least 100 ppm of calcium is removed. Again, however, our experiments show that that still isn't enough to show damage visibly (without magnification) or by touch. But it is known that the plaster surface has been compromised somewhat.

If more acid is added than needed and the process lasts longer than is needed, then more calcium or cement material is dissolved from the surface. That is not good, and as much as 150 ppm can be removed by that process. That is getting close to the point where the effect may be noticed by touch or a visual examination. That is also getting to the point where deterioration may become evident after a few months have past.

We hope that those who are inclined to perform acid startups would keep track of those pools for several years, and to compare them with pools that received the typical traditional balance water startup process.

The “Traditional” startup process only results in a loss of about 10 ppm of calcium from a 20,000 gallon pool. That is not enough to make much difference in the long term. We simply want to point out that there are questionable ways of chemically starting up plaster pools. There is also an “ideal” way to chemically start up plaster pools. Service techs from across the country tell us that the “Bicarb” startup process has worked very well for them, too, and they find that after several years have past, the plaster looks better, with less discoloration or staining, and withstands an acid wash extremely well, with easier removal of existing stains.

[www.poolhelp.com](http://www.poolhelp.com)