



How TA and pH Work

Question: Can you lower the TA without having much affect on the PH. Would a product such as diclor-sodium persulphate shock that is buffered (such as Spa lite) work to do this? And how can you raise the PH without affecting the TA?

Answer: If the TA is high (greater than 160 ppm) and the pH is near ideal or low (7.4-7.6 or below) then the acid will neutralize (reduce) the TA without much effect on the pH. If the pH is 7.8-8.0 and the TA is 120-140 ppm and acid is added, they both will come down. The key to water balance is to adjust TA first. Adjust TA to the proper level and then adjust pH. TA is the buffering capacity (water's resistance to change in pH)of the water. Too little buffer and the pH changes every time any chemical is added (called pH bounce). Too much buffer and the pH is very hard to change.

The proper pH is determined by the sanitizer and not by the type of vessel construction material (gunitite, vinyl, Acrylic, etc.). The proper TA is as follows:

For acidic sanitizers (trichlor, bromine tabs, gas chlorine) the range is 120-140 ppm

For neutral sanitizers (dichlor, 2-part bromine, dual sanitizers like tabs and liquid chlorine, Baquacil, biguanides, ozone, mineral purifiers and ionizers) the range is 100-120 ppm - unless directed otherwise by the manufacturer.

For alkaline sanitizers (cal hypo, lithium hypo, liquid chlorine) the range is 80-100 ppm.

pH can be raised by adding soda ash or sodium bicarbonate but they will also raise TA. They are different. Use soda ash when you want to raise pH and TA. Soda ash has a pH of 13 and a fair amount of alkalinity. Use bicarb when you want to raise TA with little or no effect on pH. Bicarb has a pH of only 8.3 so adding it to water that has a pH of 7.6 has a small effect.

pH can be raised without affecting the TA by using a hydroxide such as sodium hydroxide or potassium hydroxide or magnesium hydroxide. However, these chemicals are not commonly found in swimming pool or spa stores. They are very strong, dangerous and corrosive. Industrial chemical wholesale supply companies sell hydroxides. They are cheap.

In adjusting your pool water, adjust TA to the proper level first with acid. Then if your pH is just a little too low, add a small amount of soda ash.

Finally, I doubt that the dichlor/MPS buffered product would have much affect on pH or TA - that's why it's buffered.