Cyanuric acid, which I will call CYA from here on, is also referred to as stabilizer or conditioner. This product is used in swimming pools to protect the chlorine from being burnt off by the sun's ultraviolet rays**.**

CYA is a somewhat misunderstood component in pool care even to those of us who have been in the business for decades. We have a hard time understanding completely the role of CYA and its side effects.

Up until now the industry standard has been to keep CYA levels between 30 and 60 parts per million (ppm). Salt water pools are encouraged to keep the CYA level between 50 and 80 parts ppm.

Recently however, studies have shown that CYA levels above 30 ppm really hamper the chlorine from being effective in doing its job as disinfectant and algae preventative. CYA levels over 100 ppm are considered as too high, and harmful to chlorine processes. CYA levels over 200 ppm are considered damaging to swimming pool equipment.

The only way to lower cya levels is to drain out some existing water and add fresh water. In the Midwest and the northern states most pool owners lower their water significantly during the standard winterization process. in the spring when the pool owner refills the pool this acts as a natural balancing step to keep the cya levels in an acceptable range.

However, many people do not lower their water enough in the winter to make up for the amount of CYA that is added in summer during the swimming pool season. if you use trichlor tablets then you are adding not only chlorine to your pool but also CYA with each tablet. Again, to re-emphasize, each tablet used brings the cyanuric acid level up in the pool.

Here is an example: if you have a 25000 gallon pool and you use 7 trichlor tablets a week, your cyanuric acid level will raise up 5 ppm. If your pool is open for 18 weeks which is a little more than 4 months, you will have raised your cyanuric acid level over 90 ppm from where it started the year at. So if you begin the year in a reasonable range of 40 ppm by the end of the season you will be up to 130 ppm. Obviously certain things will affect this such as adding freshwater if your pool has a leak or is susceptible to a lot of evaporation. The numbers then could be lower. On the other hand, if you use more than 6 tablets a week during high heat conditions your number could be higher than 130 ppm.

Recent articles in Service Industry News, a publication put out for pool service companies, and other technical manuals give a fascinating new perspective on CYA. They make the case for keeping CYA levels much lower. One study says that CYA at 8 ppm gives you the best of both worlds. Your chlorine is protected at about an 87% effectiveness from ultraviolet rays. So you do not get 100% UV protection, but the 87% remaining chlorine in your pool is much more effective in fighting contaminants and algae, since It is not impeded by higher CYA levels.

There is a formula to support this new approach to CYA: FC (free chlorine)= 7.5% x CYA level. This tells homeowners how much chlorine they need to fight contaminants and mustard algae. So if the cyanuric acid is at 40 ppm, which until now has been considered an ideal range, you would need 3.0 ppm of chlorine to keep your pool disinfected and free of green algae and black algae. Those pools that are near 100 ppm CYA would need over 7.5 ppm free chlorine to be effective as a sanitizer and algae killer. Mustard algae requires an even higher level of chlorine to be prevented.

If you take the same pool and reduce the cya level to 15 ppm you would now need a chlorine level 1.0 ppm for the same disinfectant and algae prevention.

This would mean you could keep your chlorine levels much lower and get the same benefits for disinfecting. You also would avoid many of the unpleasant side effects when using chlorine such as bleached suits bleached pool liners chlorine irritation to eyes and skin, etc.

Therefore, Heschmeyer Pools, has begun recommending much lower CYA. If your CYA levels are above 30 ppm we recommend draining out enough water and fresh filling to achieve lower numbers. To keep the CYA levels down in pools we are now recommending most of our customers begin using calcium hypochlorite chlorine tablets. These are tablets that do not have the stabilizer pressed into each tablet. They are also known as un- stabilized chlorine tablets. If you use these you will not elevate your CYA levels at all. Granular chlorine shock and liquid bleach could also be used as disinfectant. Neither of those products have CYA added to them. However, neither of them are very convenient to use as they need to be added each day to keep up with your chlorine needs. Where calcium hypochlorite tablets can be added to your skimmer or dedicated chlorinator on a once a week basis.

Summary:
Cyanuric Acid Pros (with 10-40ppm levels)

- Stabilizes chlorine, keeps it from being easily burnt off by the sun.
- Chlorine lasts longer in pool.

Cyanuric Acid Cons (readings over 50ppm)

- Slows down the “kill time” for chlorine. Takes longer to neutralize contaminants in the pool water.
- Because it slows reaction of chlorine, pool owner needs to raise chlorine levels to get necessary sanitation results.
- As owner adds more chlorine tablets they are also raising the CYA level, which begins a harmful cycle: elevating both chlorine and CYA levels to get proper sanitation.
- As CYA gets over 100 ppm, etching can occur in plaster
- As it hits the 200ppm range staining occurs
- As it hits the 200ppm range equipment damage occurs to pump seals, heaters, and other metalic equipment parts.