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A Return to Simplicity

The Benefits of Liquid Sodium Hypochlorite for Swimming Pools

By Terry Arko, HASA Pool

OVERWHELMING PRODUCT CHOICES FOR POOL WATER TREATMENT

In today's world the consumer has become fraught with product choices. Everything from food, beverages, and clothing. The same has occurred for the treatment of swimming pool water. The primary task for a pool service professional is to ensure the water in the pool is clean and safe for the swimmers. Chlorine has been a long- standing way to sanitize swimming pools and keep them free from bacteria or algae growth. Going back in time before the glut of products and the advent of the product junkies, the treatment of pool water was mostly simple. Two primary forms of chlorine compound were widely used, liquid chlorinating compound sodium hypochlorite and calcium hypochlorite dry tablets in both commercial and residential pools. The water was balanced primarily with muriatic acid or soda ash as well. As swimming popularity increased, more pools were built, and more swimmers entered the water. Longer hours at the aquatic facility and more bodies in the backyard pool put a huge strain on the water quality. Products to address the surge began to fill the market. More chlorinating options were available including trichlor tablets. Feeder systems became more prevalent and sophisticated. Add to this the advent of devices such as ozone, UV, and advanced oxidation process AOP. Then, specialty chemicals to manage everything from algae to evaporation prevention. The maintenance of the backyard pool has evolved from simple to complicated and confusing.

HOW TABLET CONVENIENCE REPLACED LIQUID PRACTICALITY IN THE MARKET

While calcium hypochlorite and liquid sodium hypochlorite were enjoying mainstream popularity in backyard pools there was a problem. That problem was the fact that both forms of hypochlorite were un-stabilized. That meant that in the summer sun the free chlorine created by these un-stabilized compounds didn't last very long. In fact, all the chlorine from liquid sodium hypochlorite or calcium hypochlorite was destroyed in about four hours by the direct summer sunlight. Since this problem began to be recognized the practice of adding extra amounts of liquid sodium hypochlorite in the late afternoon or evening was incorporated. In 1956 Monsanto began to produce and distribute a chlorine stabilizer known as cyanuric acid (CYA). At levels of 30 ppm CYA helped to slow the degradation of chlorine from UV sunlight. There was an incredible benefit from adding CYA to the pool water to make chlorine last longer. Soon solid tablets of stabilized chlorine known as isocyanurates began to make their way into residential swimming pools. The selling point was convenience for the pool owner. The tablets could be added to an inline feeder, or a floating container known as a floater. The main advantage of trichlor tablets was having the stabilizer that protects chlorine from the sun built right into the tablet. Instant convenience was the selling point. As this system of treating backyard pools grew in popularity liquid sodium hypochlorite was pushed out as the main source of pool sanitization. Liquid was now mainly used as a back-up or shock to trichlor tablets in pools.

THE PERCEIVED CONVENIENCE OF DRY CHLORINE CAUSES COMPLICATIONS.

While the two-in one convenience of trichlor tabs continued to grow there was something going on beneath the surface that pool pros and homeowners were beginning to observe. Early on there was a suspicion that higher levels of CYA could lock up the effectiveness of the chlorine. This was known as "chlorine lock." One thing that began to become certain on an anecdotal basis was that pools that used trichlor tabs with increasing amounts of CYA were becoming a struggle to maintain. It seemed more of a challenge to keep free available chlorine levels and many pools had algae problems toward the end of the season. Users of trichlor tabs began to become aware of some side effects from use that led to complications in water treatment. What began to be revealed was the amount of CYA being released from the continual dependence on trichlor tablets as the primary means of chlorination. Most of an 8 oz. trichlor tablet consist of CYA. Over 54% by weight is CYA with the other 46% being chlorine and binders. So, it was realized that a lot of CYA comes from trichlor tabs. However, there was a large contingent of folks under the impression that more is better, while others were beginning to see the need to drain and dilute to keep CYA levels down. Regardless of the stance on the CYA debate one point was clear, trichlor tabs actually made the maintenance of pool water more complicated. Some other points regarding this were the fact that trichlor tabs were very acidic and lowered both pH and total alkalinity. Also, the CYA was recognized as an interference in determining proper carbonate alkalinity. At levels of 60ppm CYA or above there could be one third interference in the total alkalinity reading. More inconvenience to deal with in adjusting water balance. It is clear to see that the perceived convenience of trichlor tablets has led to a lot of complications for service pros.

LIQUID SODIUM HYPOCHLORITE AND SALTWATER GENERATORS

Moving into the 1990's devices began to become more popular. One that increased in a big way was saltwater generators. These were sold to many new pool owners under the auspice of being a "non-chemical" pool that relied only on salt to purify the water. Many of those new pool owners were not aware that the salt unit installed on their new pool was a small home version of a large-scale, liquid sodium hypochlorite factory. Liquid sodium hypochlorite is made at chemical plants by first using a process of electrolysis to split the sodium chloride molecule. Simple salt is divided into chlorine and sodium hydroxide then this is blended with water to form liquid sodium hypochlorite. The same process applies to saltwater generators in swimming pools. So, they really are more correctly referred to as chlorine generators. Like any type of chlorine sanitized swimming pool, a chlorine generator system will still need to have a level of CYA to prevent rapid burn out of chlorine from UV sunlight. CYA levels in a salt pool are good at a level of 30 -50ppm. At times, a chlorine generator may need a back-up of manually added chlorine to keep the water quality good. This could be a result of heavy swimmer load, equipment failure or power outage. Liquid sodium hypochlorite is one of the best back-up sanitizers for chlorine generator systems. The main reason for this is due to the by-product that comes from the use of sodium hypochlorite. Let's look at the different types of chlorine and their by-products:

- Calcium hypochlorite – by product left in water is calcium chloride
- Trichlor – by product left in water is cyanuric acid CYA
- Liquid Sodium Hypochlorite – by product left in water is sodium chloride (salt)

The only by product left from using liquid sodium hypochlorite to back up a chlorine generator pool is sodium chloride better known as salt. Out of all the types of chlorine liquid sodium hypochlorite gives a chlorine generator pool what it needs to function properly. Liquid sodium hypochlorite is a great additive to a salt chlorine generator system because it can help to replace the salt that can be lost from backwashing or splash-out of water.

LIQUID SODIUM HYPOCHLORITE AND SECONDARY DEVICE SYSTEMS OZONE, UV AND AOP

There are secondary sanitizer devices which have gained in

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The IPSSAN

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We want to spotlight our members!

CALL FOR CONTENT
Have you had to use the IPSSA's Tech-4-Tech Coverage (previously called sick route) benefit? We are looking for members to send us testimonials on how Tech-4-Tech Coverage helped them in their time of need. Please send your story to editor@ipssa.com.

IPSSA MEMBER PORTAL
Have you logged on and updated your IPSSA.com Member profile listing? Enhance your exposure by uploading your company logo, linking your business website and social media pages, as well as uploading some pictures of your work. If you need your log in credentials re-sent, please contact memberservices@ipssa.com

A Letter from the President

HELLO IPSSA NATION. I hope this finds you all doing well. It's HERE! Maybe not officially, but Summer is here, especially in my world in southern Florida. Snowbirds have flown back up north. Memorial Day is in the rearview mirror. Kids are out of school and it was 93 degrees here today, which meant with humidity it felt more like 97 degrees. As you are all preparing for the summer ahead, I would like you to take a moment and check your pools to make sure they are as safe as they can be. If you find something you think could be a hazard, take the necessary action to advise your customer and make that pool as safe as you can. IPSSA has "water watcher" tags and water safety coloring books available to you for free. All you need to do is send a request to info@ipssa.com.

In late April we had our second quarter BORD meeting in Scottsdale, AZ. I would like to thank all of Region 8 members that came and spent their Saturday morning with us in the meeting. It was much appreciated. On a sad note, at the BORD meeting, I accepted the resignation of a Regional Director. I never like doing that, but I respect his decision and want to thank Ryan Ruminson of Region 1 for his service on the BORD this last year and wish him good luck in all his future endeavors.

I do have something I want to share with you that I find troubling. A few weeks ago, I got an email about a longtime member (20 year member) leaving IPSSA. The reason given was that his business was growing and IPSSA's insurance program did not work for his business anymore, so he found his general liability insurance elsewhere and cancelled his IPSSA membership. The part that troubles me is this did not have to happen. Your BORD has been preaching for a couple of years now that you do not need Arrow/HUB's insurance program to be a member of IPSSA. I understand that the one size policy does not meet all our members' needs, especially those of you with employees. The BORD has worked hard to try to accommodate all members of IPSSA. For example, those of you with employees can call Arrow/HUB Insurance directly and set up a policy specifically to your company's needs and still get the IPSSA member discount. We also just announced that there are no National dues for employees. So, what I am trying to say is that those of you in Chapter leadership roles have options for your Chapter's members. If you have any questions or your members do, please get in contact with your Regional Director. If your Director doesn't have the answers, call or email me. I will help you in any way I can.

On a positive note, I am happy to report that the membership campaign is gaining momentum. We have added 42 members in the first five months of this year. Way to go IPSSA Nation! Keep up the great work and remember if you need any help, just ask. It is what we are here for.

Recently you also should have seen the press releases on our two new awards, IPSSA Chapter of the Year and IPSSA Pool Professional of Tomorrow. Go make yourself knowledgeable of the qualifications and prepare nominations towards the end of the year. Award information and nomination forms can be found at www.ipssa.com/ipssa-awards. Winners will be recognized at the Weekend of Inspiration Conference in Long Beach, CA in February 2024. On a side note, I am the Chairperson for the Weekend of Inspiration Conference. My team has already started working on the event so that we can bring you something like no other IPSSA Leadership Conference has had in the past. We are changing it up this year so stay tuned for more details in the coming months.

That is all for this addition. Remember to be safe and wear your sunscreen. As always, thank you for your support.

Take care,

Todd Starner,
IPSSA National BORD President

Liquid Sodium Hypochlorite

Continued from front page

popularity recently. These are ozone, UV, and Advanced Oxidation Process AOP. All these systems are not approved by the EPA as primary sanitizers but are considered as secondary. Even though they are beneficial to oxidize and inactivate many pool water contaminants they are unable to leave a measurable residual in the water. That means that chlorine still needs to be the primary sanitizer in these pools with a residual between 1-4 ppm. CYA levels need to be controlled in these types of systems in order to get the desired residuals to ensure protection from bacteria in the pool. 30-50 ppm of CYA is the recommended level in these systems. At a CYA level of 60 ppm it would take 4.5 ppm of chlorine to inactivate bacteria. This is outside the required EPA rule. Since the main purpose of secondary devices is to allow for complete disinfection with lower amounts of chlorine, the use of trichlor in these types of systems would not be a good fit. Again, liquid sodium hypochlorite is a preferred choice for these systems because it provides manageable levels of free chlorine without by products that will reduce the system effectiveness of UV, ozone or AOP.

THE BENEFITS OF A SIMPLE LIQUID SODIUM HYPOCHLORITE SYSTEM IN TODAY'S SWIMMING POOLS

Liquid sodium hypochlorite has been proven throughout the history of pool chlorination to be one of the most cost effective, easy, and safest ways to disinfect pool water. This is a good time to return to the simplicity of liquid for effective pool treatment. ■

BENEFITS OF LIQUID SODIUM HYPOCHLORITE

- Affordable
- Easy to use
- Safe for storage as it is non-flammable and non-combustible
- Leaves a measurable residual of free chlorine
- Does not contain calcium or cyanuric acid
- Beneficial as a back- up shock to chlorine generator systems
- When trichlor is used as a maintenance treatment liquid is a great shock to help keep CYA levels managed.
- Ideal for use with secondary sanitizing systems like ozone, UV and AOP