Everything You Need to Know About Combined Chlorine

Description

While often overlooked or misunderstood, **Combined Chlorine is the #1 cause of eye and skin irritation in pools.** We are often contacted by customers experiencing eye and skin irritation, asking if they can use something other than chlorine in their pool. This irritation can be a result of pH being out of range, but usually it is a result of a build-up of combined chlorine, **not the usage of chlorine itself.**

Background

Combined chlorine is chlorine that has attached itself to organic matter like sweat or urea. The ideal level of combined chlorine in a pool is 0ppm. Any amount (.1ppm or higher) of combined chlorine can be irritating to pool users.

Combined chlorine is avoidable by always maintaining a level of "good" free chlorine in the pool. Combined chlorine could be considered "bad" chlorine.

Combined chlorine can be eliminated by shocking the pool with free chlorine to ten times the ppm level of combined chlorine in the water.

Testing and Elimination

To confirm if your pool has build-up of combined chlorine, take a sample into a pool store, or even better, test it yourself with a reagent test kit. Typically, these kits don't test directly for combined chlorine, but they do test for free chlorine and total chlorine. Total chlorine is simply the sum of free chlorine plus combined chlorine.

In the Taylor test kit that we offer on myendlesspool.com the first test for chlorine you perform (using reagents #1 and #2) gives you a free chlorine reading. Let's say this comes to 1ppm. So far so good.

You then perform the 2nd test for chlorine (by adding reagent #3 to the very same sample you got your free chlorine reading from) and the sample turns a darker shade of pink to get you a total chlorine reading of 1.5ppm. Not so good.

Remember: Total chlorine = free chlorine + combined chlorine

In this example, 1.5 = 1 + .5

Your pool would have a combined chlorine level of .5ppm… this would certainly explain any complaints of eye and skin irritation! But remember, we can get rid of combined chlorine by shocking the pool to 10x the combined chlorine reading.

To continue this example 10x .5 = 5ppm. Shock the pool to 5ppm of free chlorine and the free chlorine will burn the combined chlorine off. No more eye and skin irritation complaints! Shock the pool to 4ppm however, and the combined chlorine will remain. It must be 10x or higher.

Think of combined chlorine as a big box with (10) handles on it. Ten free chlorine "workers" can lift it and get rid of it, but if you only have (9) in the room, they'll just stand there looking at it until the (10th) shows up! Talk about the ultimate "team lift required!"

Let's run through another example.

Your first test for free chlorine gives you a reading of 2ppm. You add the 3rd reagent to get your total chlorine reading and the sample stays exactly the same color to give you a 2ppm reading. Is this good or bad??

Remember: Total chlorine = free chlorine + combined chlorine

2ppm = 2ppm + 0ppm

In this example your pool has exactly 0ppm of combined chlorine. Good work! Keep doing what you are doing chlorine wise.

Alternative to Chlorine

If you've read through all that and still want to use something other than chlorine, you could technically use bromine. A few things to consider:

- Bromine breaks down to a chemical very similar to chlorine when added to water (hypobromous acid instead of hypochlorous acid)
- Bromine is not compatible with Nature 2 – remove the Nature 2 before adding bromine to your water otherwise the water will get cloudy.
- Bromine is not compatible with the anti-slip pad we currently supply on our corner steps and entry stairs. Bromine will break this material down.
- Bromine sanitizes but it does not oxidize, so a separate oxidizer needs to be purchased and added to the pool as well.
- Bromine cannot be stabilized, so it is not well-suited for outdoor pools.

All this makes chlorine look pretty good now doesn't it? Seriously, the vast majority of complaints we hear regarding chlorine are actually caused by combined chlorine, i.e. a poorly chlorinated pool, which can be avoided by always keeping a free chlorine residual in your pool and shocking it periodically for good measure.