



USA

INFORMATION

RELEASE

Advanced Pool, Spa, and Fountain Water Care Solutions

Chlorine Odor / Combined Chlorine Problems in Swimming Pools

Whenever swimmers complain that there is too much chlorine in the pool and/or the water is irritating swimmers skin, the opposite is occurring. The pool has too little effective "free chlorine" residual in the pool water. What they are smelling is the byproduct of chlorine usage called "combined chlorine" which is 80 times less effective than "free chlorine" used to keep pool water sanitized and free of algae growth.

As "free chlorine" functions to oxidize pool water to remove organics, ammonio, bacteria, algae and other debri, it slowly breakdowns to form "combine chlorine." This byproduct of chlorine oxidization can also be referred to as wasted chlorine and it has very little sanitizing function left. When a swimming pool develops excessive "combined chlorine" residuals, the water will begin to produce this noxious odor smell.

At this point, in order to remove the "combined chlorine" from the pool, it needs to be super-chlorinated to reach "break-point chlorination" which will destroy the "combined chlorine." To properly reach breakpoint chlorination and to further avoid the buildup of additional "combined chlorine" residuals in the pool, follow this super-chlorination proceedure below:

Breakpoint Chlorination Proceedure:

1. Close pool - display warning signage to swimmers
2. Test pool water to determine the "free and total" chlorine residuals using a DPD test kit, *do not use OTO test kit as it only tests for "total" chlorine residuals.*
3. Subtact the "free chlorine" residual ppm from the "total chlorine" residual ppm. Multiply the difference between the two residuals ppm by 10. This will determine the the amount of chlorine in ppm's needed to reach "breakpoint chlorination."

Example: if the difference between the free and total chlorine is 1.5 ppm, multiply by 10 which would indicate you need to add 15 ppm chlorine to the pool.

4. Determine volume of pool water in gallons or liters. Add sufficient amount of chlorine to achieve "breakpoint. *It is important that the proper amount of chlorine be added to remove and destroy "combined chlorine" levels or the level of combined chlorine will be increased and the pool will not achieve proper sanitation.*
5. Over the next 24 to 48 hours, test pool water until the "free" and "total" chlorine residuals are the same or nearly the same. At this point, combine chlorine has been eliminated. Whenever there is a difference of more than 25% between "free" and "total" chlorine, the pool should be super-chlorinated.

Formula to determine ppm of chlorine residual (by chlorine type) in pool volume:

Multiply the weight of active ingredient of chlorine you are using in one pound or kilos by 120,000 to convert to ppm. Next, divide the **result** by the volume of water in your pool. This **result** will indicate how much ppm of chlorine per pound or kilo you get by the volume of your pool size.



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