PUBLIC HEALTH
Prevent • Promote • Protect
BENTON-FRANKLIN HEALTH DISTRICT

Swimming pool water requires disinfection and oxidation to kill waterborne bacteria, prevent algae growth, "burn up" small organic debris too small to be filtered out and improve water clarity. The most common pool disinfectant is **Chlorine**.

Types of Chlorine Products:

Chlorine Gas	Calcium Hypochlorite
Trichloro	Lithium Hypochlorite
Dichloro	Sodium Hypochlorite

When Chlorine is dissolved in water, it becomes active sanitizer called hypochlorous acid (HOCL), which is also known as **Free Available Chlorine**.

Ideal Free Available Chlorine range in public and semi-public pools in 2.0 to 6.0 PPM.

Factors that affect chlorine demand in a pool: Bather load, sunlight, rain, hour of daily filtration, windblown debris, foliage, algae spores, bacteria, suntan oils and lotions.

In the disinfection process, free available chlorine combines with ammonia compounds in the water and forms chloramines, also called **Combined Chlorine.** The original ammonia compounds come primarily from swimmers (perspiration, mucous, urine and hair/body oil). Combined Chlorine is less effective as a sanitizer than free available chlorine. Combined chlorine is also an eye irritant and is the source of the "chlorine smell" associated with swimming pools.

Free available Chlorine + Combined Chlorine = Total Chlorine

Pools must be tested for free available chlorine at least twice a day and for total chlorine at least once a day. Combined chlorine should not be more than 50% of free chlorine. Therefore, total chlorine should never be more than 1½ times greater than the free available chlorine.

Excessive combined chlorine may be "burned off" occasionally by massive oxidation, also known as superchlorination, shock treatment, or breakpoint chlorination. This process will help re-establish free available chlorine levels, eliminate eye irritation, eliminate body odors and meet extra chlorine demands that may be caused by severe conditions such as heavy rain or heavy bather loads.

Stabilizer is used in some chlorine products to extend the life of free available chlorine by reducing loss due to ultra violet rays. A common stabilizer is **Cyanuric Acid**.

Cyanuric Acid residues in pools should not exceed 90 PPM.

If stabilizer levels are low then chlorine will dissipate from pool water rapidly. However, too much stabilizer will cause dull pool water and make free available chlorine less active.