

**Indiana State Department of Health
Environmental Health**

INCREASING CHLORINE FORMULAS

Step 1: Determine the free available chlorine (**FAC**) in the pool water (ppm).

*Using the DPD test kit, following the test kit directions

Step 2: Determine the amount to increase the chlorine to (ppm)

Step 3: Determine the ppm change using the following to increase:

$$\text{Desired ppm} - \text{current ppm (FAC)} = \text{ppm change}$$

Example: Desired ppm (20) – Current ppm or FAC (1.0) = 19 ppm change

Step 4: Identify the chlorine compound to be used to increase the chlorine level, plug in the amount to increase the chlorine, and use the following formulas:

- Make sure the pH is within the acceptable range of 7.2-7.8. These chlorine compounds will significantly change the pH and affect the effectiveness of the chlorine.
 - You must know the volume of water the pool holds.
1. Calcium Hypochlorite .125 x ppm change x pool volume /10,000 = pounds
pH 11.8, granular and tablets
 2. Sodium Hypochlorite .1016 x ppm change x pool volume /10,000 = gallons
pH 13.0, liquid
 3. Lithium Hypochlorite .250 x ppm change x pool volume /10,000 = pounds
pH 10.7, powder
 4. Chlorine Gas .08125 x ppm change x pool volume /10,000 = pounds
pH < 1.0, gas

(note: “/” means divided by)

EXAMPLE:

The free available chlorine (FAC) is 1.0. The operator has decided to raise the chlorine to 20 ppm and keep the pool closed for 8 hours to satisfy the “9600 rule” and will use Calcium Hypochlorite. Volume of the pool is 200,000 gallons.

20 ppm (chlorine level to be reached) – 1.0 ppm (free available chlorine present in the pool) = 19 ppm (ppm change)

.125 x 19 x 200,000 /10,000 = 47.5 pounds of Calcium Hypochlorite must be added to the pool