

## Excessive Chlorine Levels - Bleaching of DPD Color

**At several recent inspections of bathing facilities we have found unsatisfactory high levels of chlorine (or bromine) residuals in pools or spas which required temporary closure of the facility. In some cases levels exceeding 50 parts per million (ppm) were measured although readings by the operator appeared to be satisfactory. The cause of this and corrective measures are discussed below. In order to protect bathers and to prevent unnecessary closures of the facilities please be sure all of your staff who perform chlorine residual monitoring are aware of this problem.**

According to LaMotte, a maker of many of the chlorine test kits in use, the DPD method is only useful for testing up to about 10 ppm and for Bromine up to about 22 ppm. Levels above these will bleach out the DPD indicator in the test, showing a false low or zero reading. An indication that bleaching is occurring is the presence of a flash of dark pink color around the tablet, when it is first dropped into the sample, which fades or disappears soon after. A false reading can occur when operators are mixing or shaking the test tube while the tablet is dissolving. When this is done the bleaching out of the DPD#1 tablet is not noticeable.

### **To perform the test properly:**

- 1) Fill the test tube, drop in a DPD #1 tablet and let it dissolve without shaking or mixing.
- 2) Look at the dissolving tablet before you mix and then observe changes in color as you mix and read the results.
  - If you observe a dark red color in the bottom of the test tube that fades or disappears, when mixed, the pool water is superchlorinated. **The pool must be closed until adjustments are made and satisfactory levels are measured.**
  - If the red color in the bottom of the tube stays the same or gets darker, when mixed, the reading you receive is accurate.

To measure levels higher than the range of your test kit you will have to use a kit with an appropriate range of measurement or dilute the sample with distilled water and calculate the result. Determine the approximate level of chlorine by diluting the sample of pool water with an equal quantity of distilled water and perform the test; multiply the answer by 2. If there is still no valid reading, repeat the process and multiply the answer by 4...and so on.