



**Chester County Health Department
Chlorine Dilution Multiplier**

For Cryptosporidium Elimination by Hyperchlorination

This procedure may be used for wet chemistry colorimeter and drop titration test kits for disinfectant readings above the Free Chlorine upper limit of the test kit.

Sample Volume: For most kits this is 5 milliliters.

Dilutant: Dilute the sample using any clear water that is known to be chlorine-demand free water and known to contain no disinfectant residual. Most bottled water can be used. De-ionized water can be obtained from suppliers of pool test kits for reliable sample results.

Test vials of most test kits will hold no more than 15 ml allowing for only a 10 ml dilutant (multiplying results by 3). For larger volumes of dilutant use a clean plastic or glass container to mix the Total Volume adding 5 ml of sample and then the desired amount of dilutant. The amount of dilutant used can be measured using a clean test tube.

- **Total Volume in test tube:** Mix, then adjust level in test tube to the level normally used for the test kit. (e.g. If you added 10ml dilutant to 5 ml sample, pour off 10 milliliters of the new mixture so only 5 ml remains.) Add reagent to the diluted 5 ml sample.
- **Total Volume in separate container:** Mix the Total Volume, then pour only that amount normally used to test (e.g. 5 ml) into the test tube. Add reagent to the diluted 5 ml sample.

Multiplier: After deciding on a reasonable Dilutant Volume, add reagent only after dilution has been performed and only after the normal test volume has been placed in the test vial.

Bleaching of Reagent: At very high chlorine levels, at or above 10 mg/L (ppm) Free Chlorine, the reagent color may be completely bleached by the high concentration of chlorine. Crystals of reagent added to the sample may stream pink with the entire sample turning instantly clear. The sample may flash very briefly (a second or more) when the reagent is added with the sample then turning clear. For either of these two events, suspect chlorine bleaching of reagent. If this happens, start over with a fresh sample and dilute with twice the amount of dilutant used initially.

Results: Multiply results by Multiplier corresponding to Dilutant Volume chosen.

Sample Volume (ml)	Dilutant Volume (ml)	Total Volume (ml)	Multiplier
5	0	5	1
5	5	10	2
5	10	15	3
5	15	20	4
5	20	25	5
5	25	30	6
5	30	35	7
5	35	40	8