



CHLORINE - DPD LIQUID

1200 COLORIMETER, 0-4 ppm

CODE 3670-01-LI

| QUANTITY | CONTENTS | CODE |
|-----------------|-------------------------------------|-------------|
| 30 mL | DPD #1A Free Chlorine Reagent | P-6740-G |
| 30 mL | *DPD #1B Free Chlorine Reagent | *P-6741-G |
| 30 mL | *DPD #3 Total Chlorine Reagent | *P-6743-G |
| 1 | Colorimeter Tubes, w/caps, set of 6 | 0290-6 |
| 1 | Water Sample Collecting Bottle | 0688 |
| 1 | 1200 Colorimeter for Chlorine DPD | 26728-LI |

*WARNING: Reagents marked with an * are considered to be potential health hazards. To view or print a Material Safety Data Sheet (MSDS) for these reagents go to www.lamotte.com. To obtain a printed copy, contact LaMotte by e-mail, phone or fax. To order individual reagents or test kit components, use the specified code number.

INTRODUCTION

Chlorine is added to water to kill bacteria and other disease-producing organisms, control algae, and remove undesirable odors and colors. Chlorine added to water quickly forms hypochlorous acid, HClO, also known as Free Available Chlorine, the active ingredient responsible for chlorine's sanitizing capabilities. Free Available Chlorine combines with impurities in the water to form chloramines and other organic nitrogen compounds. In combined form, its sanitizing capability diminishes, and higher levels of chlorine are necessary to achieve effective sanitation.

Therefore, it is essential to chlorinate to the point of establishing a Free Available Chlorine Residual, and then to maintain that residual at a recommended level. The LaMotte DPD method distinguishes levels of Free Available Chlorine, Combined Chlorine, and Total Residual Chlorine, using a single test sample.

CHLORINE TEST PROCEDURE - DPD METHOD

Read the 1200 Colorimeter Manual before proceeding. Carefully wipe tubes dry before inserting into the colorimeter chamber.



FREE AVAILABLE CHLORINE

1.



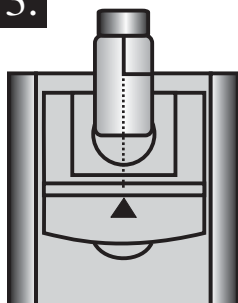
Fill the Water Sample Collecting Bottle (0688) with sample water. This will be used to dispense sample water for the tests.

2.



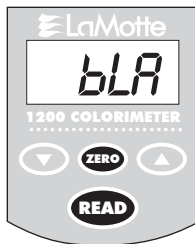
Rinse and fill a colorimeter tube (0290) to the 10 mL line with sample water. Cap and wipe dry.

3.



Insert the tube into the chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the blank or zero.

4.



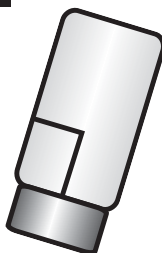
Push the **READ** button to turn the meter on. Press the **ZERO** button and hold it for 2 seconds until *BLA* is displayed. Release the button to take a zero reading (0.00 ppm).

5.



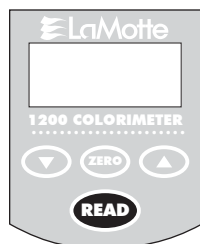
Remove the tube and add 5 drops DPD #1A Free Chlorine Reagent (6740), and 5 drops of *DPD #1B Free Chlorine Reagent (6741).

6.



Cap tube and invert to mix. Wipe tube dry. Make reading within 30 seconds.

7.



Align the index line with the arrow on the meter, insert tube into chamber. the lid. Push the **READ** button. Record results as ppm Free Available Chlorine. Save reacted sample for the Total Residual Chlorine test.

8.



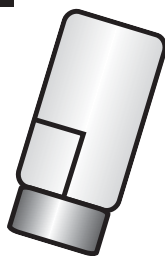
Save reacted sample for the Total Residual Chlorine Test. Proceed to Step 9.

9.



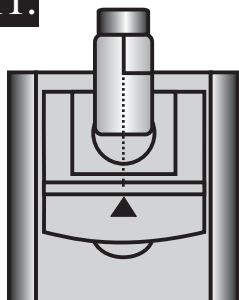
Add 5 drops *DPD #3 Total Chlorine Reagent (6743) to the sample from Step 7.

10.



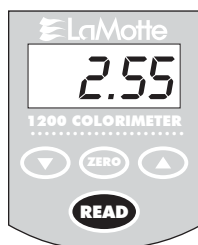
Cap tube and invert to mix.†

11.



Insert the tube into the chamber, being sure to align the index line with the arrow on the meter. Close the lid.

12.



Push the **READ** button. Record reading as ppm Total Residual Chlorine.

13.

Subtract the Free Available Chlorine reading from the Total Residual Chlorine reading to determine ppm Combined Chlorine (Monochloramine, Dichloramine, and Nitrogen Trichloride) present in the water sample.

TOTAL RESIDUAL CHLORINE

If either chlorine reading displays *ER2*, repeat procedure on diluted sample, and multiply the result by the appropriate dilution factor. See 1200 Colorimeter Instruction Manual for procedure.

Levels of chlorine above 10 mg/L will cause a bleaching effect on the DPD indicator, and may give a false indication that no chlorine is present. If it is possible that the chlorine concentration is greater than 10 mg/L (e.g. after shock treatment), perform test on a diluted sample and multiply the result by appropriate dilution factor.

CAUTION: DO NOT leave reacted DPD samples in test tubes (0290). Discard sample and thoroughly rinse tubes. If allowed to remain, DPD will stain tubes, significantly impairing the operation of the 1200 Colorimeter. If necessary, acid wash, and vigorously clean glassware with test tube brush and detergent.

† For wastewater samples, *Standard Methods for the Examination of Water and Wastewater* recommends waiting 2 minutes for full color development.

DPD CHLORINE TEST METHOD SPECIFICATIONS

Drinking water supplies and distribution systems, swimming pool and spas, sewage and chlorinated waste waters, process waters and sanitizing solutions.

RANGE

0 to 4.0 ppm Chlorine (may be extended by dilution)

METHOD

In the absence of Iodide, Free Available Chlorine reacts instantly with the buffered diethyl-p-phenylenediamine indicator (DPD) to produce a red color in proportion to the amount of chlorine present. Subsequent addition of potassium iodide produces a rapid color response from the combined forms of chlorine (chloramines).

HANDLING & PRESERVATION

Chlorine in aqueous solutions, particularly weak solutions, is not stable. Exposure to sunlight or agitation will accelerate the reduction of chlorine. Fill sample containers to the top and cap tightly. Analyze samples as soon as possible after collection.

INTERFERENCES

The only interfering substance likely to be encountered is oxidized manganese. The extent of this interference can be determined by treating a sample with sodium arsenite to destroy the chlorine present, so that the amount of interference can be measured.

CALIBRATION

The single test colorimeter is precalibrated. In order to comply with NPDWR or NPDES reporting regulations, the calibration should be checked periodically by using a set of reference standards including a 0 mg/L blank and 0.3, 1.0, and 4.0 mg/L chlorine. To prepare these standards, a LaMotte 250 ppm standard chlorine equivalent solution (Code 6973) is available. Consult with your local regulatory agency to determine standardization frequency.

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