



## 1200 COLORIMETER PHOSPHATE

MODEL 1200-PLR CODE 3679-01

QUANTITY	CONTENTS	CODE
2 x 60 mL	*Phosphate Acid Reagent	*V-6282-H
10 g	*Phosphate Reducing Reagent	*V-6283-D
6	Colorimeter Tubes, 10 mL, w/cap	0290
1	Spoon, 0.1g, plastic	0699
1	Water Sample Collecting Bottle	0688
1	Pipet, 1.0 mL, plastic	0354
1	1200 Colorimeter for Phosphate	26736

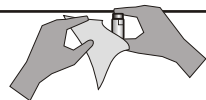
**\*WARNING:** Reagents marked with an \* are considered to be potential health hazards. To view or print a Material Safety Data Sheet (MSDS) for these reagents go to [www.lamotte.com](http://www.lamotte.com). To obtain a printed copy, contact LaMotte by e-mail, phone or fax. To order individual reagents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

### INTRODUCTION


Phosphorus is an important nutrient for aquatic plants. The amount found in water is generally not more than 0.1 ppm unless the water has become polluted from waste water sources or excessive drainage from agricultural areas. When phosphorus is present in excess of the concentrations required for normal aquatic plant growth, a process called eutrophication takes place. This creates a favorable environment for an increase in algae and weed nuisances. When algae cells die, oxygen is used in the decomposition and fish kills often result. Rapid decomposition of dense algae scums with associated organisms give rise to foul odors and hydrogen sulfide gas.

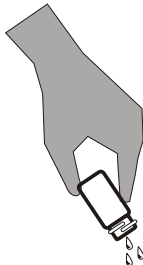
## PHOSPHATE PROCEDURE - ASCORBIC ACID METHOD

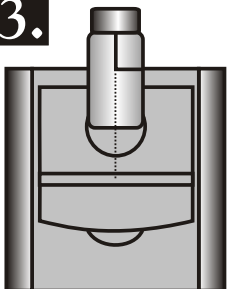
Read the 1200 Colorimeter Manual before proceeding. Carefully wipe tubes dry before inserting into the colorimeter chamber.

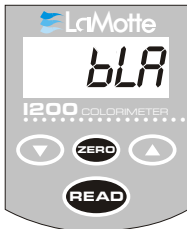



### PHOSPHATE

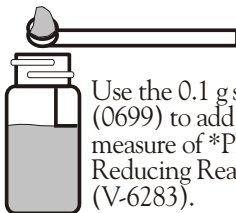
**1.**  Fill the Water Sample Collecting Bottle (0688) with sample water. This will be used to dispense sample water for the tests.

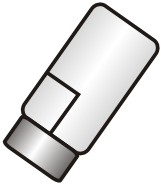
**2.**  Rinse and fill a colorimeter tube (0290) to the 10 mL line with sample water. Cap and wipe dry.


**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 sample 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 blank reading (0.0 ppm).

**5.**  Remove tube from colorimeter. Use 1.0 mL pipet (0354) to add 1.0 mL of \*Phosphate Acid Reagent (V-6282). Cap and mix.

**6.**  Use the 0.1 g spoon (0699) to add one measure of \*Phosphate Reducing Reagent (V-6283).

**7.**  Cap and shake until powder dissolves. Wait 5 minutes for full color development. Solution will turn blue if phosphates are present. Wipe tube dry.

**8.**  Align the index line with the arrow on the meter, insert tube into chamber. Close the lid. Push the **READ** button. Record results as ppm Orthophosphate.

# **PHOSPHATE TEST METHOD SPECIFICATIONS**

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## **APPLICATION**

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Drinking, surface and saline waters; domestic and industrial wastes (Method based on reactions that are specific for orthophosphate).

## **RANGE**

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0 to 3.0 ppm Orthophosphate (Range can be extended by dilution.)

## **METHOD**

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Ammonium molybdate and antimony potassium tartrate react in a filtered acid medium with dilute solution of  $\text{PO}_4^{3-}$  to form an antimony-phosphomolybdate complex. This complex is reduced to an intense blue colored complex by ascorbic acid. The color is proportional to the amount of phosphate present. (Only orthophosphate forms a blue color in this test.) Polyphosphates (and some organic phosphorus compounds) may be converted to the orthophosphate form by sulfuric acid digestion. Organic phosphorus compounds may be converted to the orthophosphate form by persulfate digestion.

## **HANDLING & PRESERVATION**

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If benthic deposits are present in the area being sampled, great care should be taken not to include these deposits. If the analysis cannot be performed the same day of collection, the sample should be preserved by the addition of 2 mL of concentrated sulfuric acid or 40 mg mercuric chloride per liter and refrigerated at 4°C.

## **INTERFERENCES**

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1. No interference from copper, iron, or silicate at concentrations many times the concentration of sea water. However, high iron concentrations can cause precipitation and subsequent loss of phosphorus.
2. Salt error for samples ranging from 5% to 20% salt content was found to be less than 1%.
3. Mercuric chloride,  $\text{HgCl}_2$ , when used as the preservative, interferes when the chloride levels are low (less than 50mg/L). This interference is overcome by spiking samples with a minimum of 50 mg/L of sodium chloride.

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