



# LOW RANGE PHOSPHATE IN WATER TEST KIT

## ASCORBIC ACID REDUCTION METHOD

### MODEL PAL • CODE 3121-01

QUANTITY	CONTENTS	CODE
2 x 30 mL	*Phosphate Acid Reagent	*V-6282-G
5 g	*Phosphate Reducing Reagent	*V-6283-C
3	Test Tubes, 10 mL, glass, w/caps	0843
1	Pipet, 1.0 mL, plastic	0354
1	Spoon, 0.1 g, plastic	0699
1	Distilled Water Ampoule, 5 mL	2748
1	Phosphate Comparator, 0.0-2.0 ppm	3122
1	Axial Reader	2071

\*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.

Read Axial Reader Instruction Manual (35048) before proceeding.



#### NOTES:

This test determines levels of orthophosphates only.

This test should be run on clear samples only. Filter the sample if necessary.

Best results are obtained when solution temperatures are 23-25°C.

**WARNING!** This set contains chemicals that may be harmful if misused. Read cautions on individual containers carefully. Not to be used by children except under adult supervision

## **PROCEDURE**

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1. Fill test tube (0843) to 10 mL line with sample water.
2. Use 1.0 mL pipet (0354) to add 1.0 mL of \*Phosphate Acid Reagent (V-6282). Cap and mix.
3. Use 0.1 g spoon (0699) to add one level measure of \*Phosphate Reducing Reagent (V-6283). Cap and mix until dissolved. Wait 5 minutes.
4. Remove cap from test tube. Place tube in Phosphate Comparator (3122) with Axial Reader (2071). Read Axial Reader Instruction Manual before proceeding. Fill two test tubes (0843) to the 10 mL line with sample water. Place in Axial Reader. Match sample color to a color standard. Record as ppm Orthophosphate.

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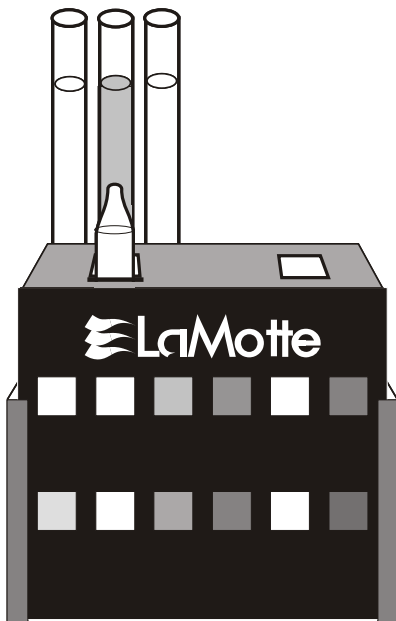


## AXIAL READER INSTRUCTION MANUAL

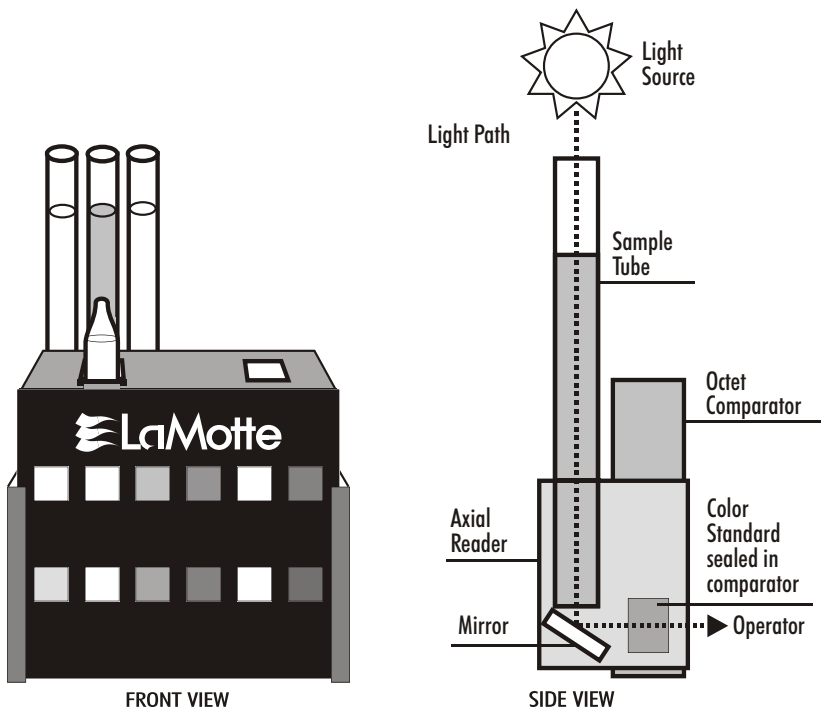
### INTRODUCTION

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When color reactions in test procedures produce extremely faint colors, it is difficult to quantify the color by looking directly through the diameter of the tube. Excellent readings can be made on samples exhibiting lightly colored reactions by viewing the sample down the length of the test tube. By looking down the length of the column of liquid in the tube, the color is concentrated five to ten times, depending upon the height of the liquid column. The LaMotte Axial Reader has been developed to provide an easy method for reading faint colors. The Octet Comparator unit furnished with the Axial Reader provides color standards that are equivalent to the concentrated "axial" color reading.

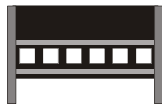


## SETUP



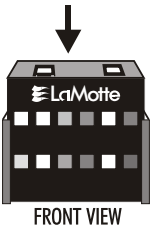
## PROCEDURE

- 1 Place the Axial Reader (2071) on table top with open side facing operator. The mirror should be facing operator.



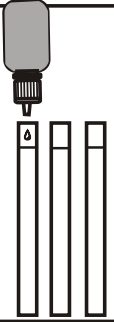
FRONT VIEW

**2** Position the Octet Comparator in the open slot of the Axial Reader with labels facing the operator. The bottom of the comparator should be flat on the table surface.




FRONT VIEW


**3** Fill two test tubes to the 10 mL line. These are the blanks. Fill the third tube with sample water according to the test procedure instructions.



**4** Treat one test tube according to test procedures; the other two will be used as blanks. Remove the test tube caps after adding the reagents and mixing.

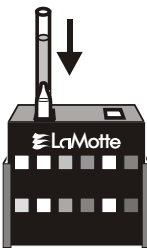


**5** Insert ampoule of distilled water into square hole on left side of Octet Comparator.



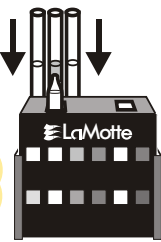
FRONT VIEW

**6** Insert test tube with treated sample into slot in Axial Reader directly behind distilled water ampoule.




FRONT VIEW

**7** Insert two test tubes with untreated sample into slots in Axial Reader on either side of treated sample.



FRONT VIEW

**8** Slide Octet Comparator down until top is even with top of Axial Reader. Hold comparator so natural light (or dalite fluorescent light) shines down through test tubes. Compare color in center test tube to colors in top left corner of Octet Comparator.



- 9a. If the color of the test sample is less than the color of the lowest value, the result is recorded as “less than” the lowest value.
- b. If the color of the test sample matches one of the color standards in the upper left-hand quadrant, the result is taken as the value of that color standard.
- c. If the color of the test sample falls between these two values, the result is the average of these two values.
- d. If the color of the test sample is darker than the color of the second color standard, move the comparator to a position where the bottom of the Axial Reader and the bottom of the comparator are even. This movement aligns the mirror with the bottom row of windows in the comparator. The comparator unit should be moved carefully within the reading device to avoid spilling the contents of the tubes. The comparison of the unknown sample is then made with the standards in the lower left-hand quadrant of the Octet comparator.
- e. If a color match is not reached with the standards on the left-hand side of the comparator, the test sample and blank tubes are transferred to the right-hand side of the Axial Reading device. The ampoule of distilled water is transferred to the hole on the right-hand side of the comparator. Be certain that the test sample is positioned directly behind the ampoule of distilled water with the untreated sample (blanks) on either side of the treated sample. The comparison technique is continued as described above.
- f. If the comparator contains standards for two test factors, for example nitrate-nitrogen on the left-hand side and phosphate on the right-hand side, the sample is compared to the first four standards on the left-hand side for the first test factor, and to the second four standards on the right-hand side for the second test factor.

## **TEST EQUIPMENT CARE AND MAINTENANCE**

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This test equipment has been designed to give years of dependable service. The following suggestions are made so that you may obtain the maximum performance from this equipment:

1. Carefully follow the instructions.
2. Carefully wash out the test tubes after each test.
3. Tighten the reagent container caps immediately after use. Do not interchange caps.
4. Avoid prolonged exposure of equipment to direct sunlight.
5. Avoid extremely high temperatures and protect the equipment from freezing.
6. Anticipate your requirements for replacement reagents.
7. Read MSDS and safety information for all reagents.

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