Instruction Manual

HI 38061 Phosphate Test Kit with Checker Disc

HANNA instruments

www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Product.

Please read the instruction sheet carefully before using the test kit. It will provide you with the necessary information for correct use of the kit. If you need additional information, do not hesitate to e-mail us at tech@hannainst.com.

Remove the test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- HI 93713-0 Reagent, packets (100 pcs);
- Deionized Water, 1 bottle (500 mL);
- 1 checker disc (including a mirror, a mirror holder , the 38061 and the 38073 discs);
- 2 glass vials with caps;
- 1 plastic pipette (3 mL);
- 1 long plastic pipette.

Note: Any damaged or defective item must be returned in its original packing materials.

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SPECIFICATIONS

Range	0 to 1.0 mg/L (ppm) Phosphate (LR) 0 to 5.0 mg/L (ppm) Phosphate (MR) 0 to 50 mg/L (ppm) Phosphate (HR)
Smallest Increment	0.02 mg/L (ppm) Phosphate (LR) 0.1 mg/L (ppm) Phosphate (MR) 1 mg/L (ppm) Phosphate (HR)
Analysis Method	Colorimetric
Sample Size	10 mL (LR), 7.5 mL (MR), 0.75 mL (HR)
Number of Tests	100
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	1010 g (35.6 oz)

SIGNIFICANCE AND USE

Phosphorus occurs in natural waters and in wastewaters almost entirely as phosphates (PO_4^{3-}). Large quantity of phosphate arise from laundering industries as it is used in many cleaning preparations, from soil runoff and sewage.

Phosphorus is essential to plants since it contributes to the formation of buds, roots and blooming as well as lignification and its lack results in stifled plants or pale green color with reddish pigmentation on leaves' edges.

On the other hand, an extensive discharge of phosphorus in water is the major cause of eutrophication, which is an abnormal and excessive growth of aquatic plants.

Note: mg/L is equivalent to ppm (parts per million).

CHEMICAL REACTION

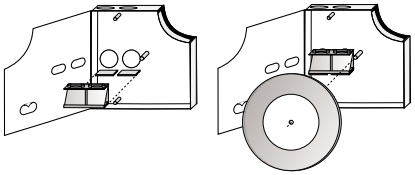
Adaptation of the ascorbic acid method. The reaction between phosphate and the reagent causes a blue tint in the sample.

INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

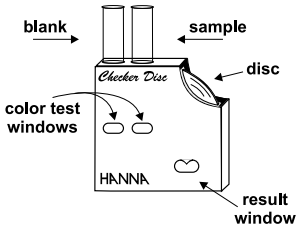
0-1.0 ppm Phosphate (PO_4^{3-}) Range:

1- Verify that the mirror, its holder and the 38061 disc are pre-installed in the checker disc. If not, install them as shown in the figure.

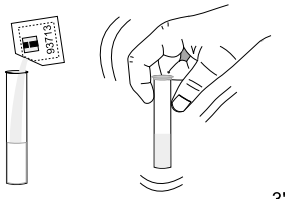


2- Using the pipette, add to each glass vial 10 mL of sample (up to the mark).

3- Insert one of them into the left hand opening of the checker disc. This is the blank.



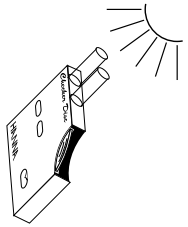
4- Add to the other glass vial 1 packet of HI 93713-0 Reagent. Replace the cap and shake vigorously for 20 seconds. This is the reacted sample.



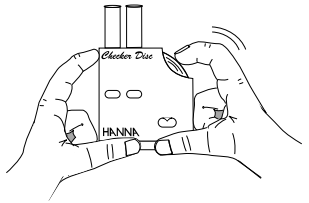
5- Wait for 3 minutes to allow reaction to occur.

6- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.

7- Hold the checker disc so that a light source illuminates the samples from the top.

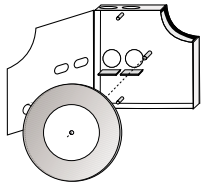


8- Keep the checker disc at a distance of 30-40 cm (12-16") from the eyes to match the color. Rotate the disc while looking at the color test windows and stop when you find the color match. Read the value in the result window directly in mg/L (or ppm) of Phosphate. To convert this result to mg/L (ppm) of Phosphorus, divide it by 3.1.



0-5.0 ppm Phosphate (PO_4^{3-}) Range:

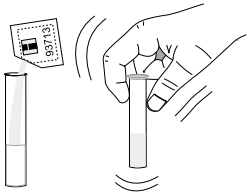
9- Remove the mirror, if installed, and insert just the 38073 disc as shown in the figure.



10- Using the pipette, add to each glass vial 7.5 mL of sample (up to the mark).

11- Insert one of them into the left hand opening of the checker disc. This is the blank.

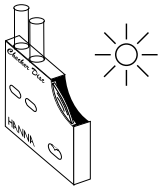
12- Add to the other glass vial 1 packet of HI 93713-0 Reagent. Replace the cap and shake vigorously for 20 seconds. This is the reacted sample.



13- Wait for 3 minutes to allow reaction to occur.

14- Remove the cap and insert the reacted sample into the right hand opening of the checker disc.

15- Hold the checker disc so that a light source illuminates the samples from the back of the windows.

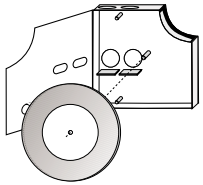


16- Keep the checker disc at a distance of 30-40 cm (12-16") from the eyes to match the color. Rotate the disc while looking at the color test windows and stop when you find the color match.

17- Read the value in the result window, divide it by 10 and record it in mg/L (or ppm) of Phosphate. To convert this result to mg/L (ppm) of Phosphorus, divide it by 3.1.

0-50 ppm Phosphate (PO_4^{3-}) Range:

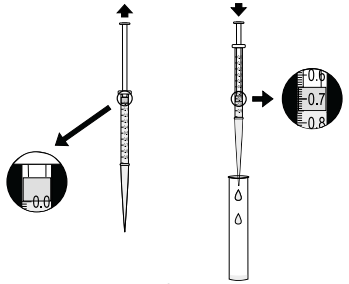
18- Remove the mirror, if installed, and insert just the 38073 disc as shown in the figure.



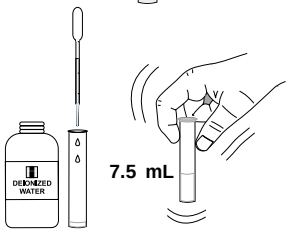
19- Using the 3 mL pipette, add to one of the glass vials 5 mL of sample (up to the mark) and insert the vial into the left hand opening of the checker disc. This is the blank.

20- Using the syringe, add to the other vial 0.75 mL of sample.

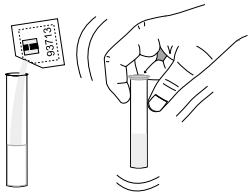
Note: To measure exactly 0.75 mL of sample with the syringe, push the plunger completely into the syringe and insert the tip into sample. Pull the plunger out until the lower edge of the seal is on 0.0 mL mark of the syringe. Insert the syringe into the vial and push the sample out until the lower edge of the seal is on the 0.75 mL mark (the longer mark between 0.7 and 0.8).



21- Use the long plastic pipette to add deionized water up to the 7.5 mL mark, replace the cap and swirl to mix.



22- Remove the cap and add 1 packet of HI 93713-0 Reagent. Replace the cap and shake vigorously for 20 seconds. This is the reacted sample.



23- Follow the instructions from step 13 to 16.

24- Read the value in the result window directly in mg/L (or ppm) of Phosphate. To convert this value to mg/L (ppm) of Phosphorus, divide it by 3.1.

For best results: Perform the reading three times and take the average value (divide by 3 the sum of the three numbers). Intensely colored samples will make the color matching determination difficult and they should be adequately treated before performing the test. Suspended matter in large amounts should be removed by prior filtration.

Caution: Ultraviolet radiation may cause fading of colors. When not in use, keep the disc protected from light, in a cool and dry place.

Interferences: iron above 5 ppm; copper above 10 ppm; hydrogen sulfide, arsenate and highly buffered samples.

REFERENCES

APHA, AWWA, WEF, *Standard Methods for the Examination of Water and Wastewater*, 18th edition, 1992

HEALTH AND SAFETY

The chemicals contained in this kit may be hazardous if improperly handled. Read the relevant Health and Safety Data Sheet before performing this test.