



Orthophosphate Test

0 to 1, 0 to 5, 0 to 50 mg/L for test kits
224800 (PO-19) and 224801 (PO-19A)

DOC326 98.00023

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Test preparation

- Assemble the color comparator by placing the color disc on the center pin with the lettering facing out.
- Use sunlight or a lamp as a light source when matching colors with the color comparator.
- Rinse tubes and bottles with the sample water before testing. Rinse with deionized water after testing. For best results clean with 6.0 N (1:1) Hydrochloric Acid Solution (see Optional items) and rinse with deionized water.
- Accuracy is not affected by undissolved powder.
- To check reagent accuracy, use a standard solution in place of the sample (see Optional items).
- If the color from the low range test is so dark that it reads off the high end of the scale, repeat the test using a new sample and the mid range instructions.
- Sample preparation for testing boiler water or other turbid waters (PO-19A)—turbidity is often present in boiler water and must be removed to obtain accurate test results for soluble phosphate. Kit PO-19A includes a funnel, filter paper and two square mixing bottles for filtering the sample. Since the turbidity may be so fine it cannot be removed by direct filtration, a bottle of Filtration Aid Solution has been included with this kit.

CAUTION: Handle chemical standards and reagents carefully. Review Material Safety Data Sheets for safe handling, storage and disposal information.

Low range (0 to 1 mg/L) test procedure

- Insert the long path viewing adapter.
- Fill a tube to the top line with sample.
- Insert the tube into the left opening of the comparator.
- Fill the bottle to the 20-mL mark with sample.
- Add one PhosVer® 3 Phosphate Reagent Powder Pillow to the bottle. Swirl to mix.

Wait 8 minutes. If phosphate is present, a blue color develops.
- Fill another tube to the top line with prepared sample.
- Insert the second tube into the right opening of the comparator.
- Hold the comparator so that a light source is directly above the tubes. Rotate the color disc until the colors in the front windows match.
- Divide the reading in the scale window by 50 to obtain the mg/L phosphate phosphorus.

Note: Divide the mg/L phosphate value by 3 to obtain the mg/L phosphorus.

Mid range (0 to 5 mg/L) test procedure

- Remove the long path viewing adapter.
- Fill two tubes to the first (5-mL) line with sample.
- Insert one tube into the left opening of the comparator.
- Add one PhosVer® 3 Phosphate Reagent Powder Pillow to the second tube. Swirl to mix.

Wait 1 minute. If phosphate is present, a blue color develops.
- Insert the second tube into the right opening of the comparator.
- Hold the comparator so that a light source is directly behind the tubes. Rotate the color disc until the colors in the front windows match.
- Divide the reading in the scale window by 10 to obtain the mg/L phosphate.

Note: Divide the mg/L phosphate value by 3 to obtain the mg/L phosphorus.

High range (0 to 50 mg/L) test procedure

- Remove the long path viewing adapter.
- Rinse two tubes with deionized water.
- Fill a tube to the first (5-mL) line with deionized water.
- Insert the tube into the left opening of the comparator.
- Rinse the dropper several times with the sample water.

Note: If the sample is turbid, see Sample preparation for turbid water (PO-19A only).
- Fill the dropper to the first (0.5-mL) line with sample.

Pour this sample into the second tube.
- Add deionized water to the first (5-mL) line on the second tube. Swirl to mix.
- Add one PhosVer® 3 Phosphate Reagent Powder Pillow to the second tube. Swirl to mix.

Wait 1 minute. If phosphate is present, a blue color develops.
- Insert the second tube into the right opening of the comparator.

High range (0 to 50 mg/L) continued

- Hold the comparator so that a light source is directly behind the tubes. Rotate the color disc until the colors in the front windows match.
- Read the result in mg/L phosphate in the scale window.

Note: Divide the mg/L phosphate value by 3 to obtain the mg/L phosphorus.

Replacement items

Description	Unit	Catalog no.
Bottle, mixing	6/pkg	232706
Color Comparator Box	each	173200
Color Disc, Phosphate, 0–50 mg/L	each	2489800
Color Viewing Tube, glass	6/pkg	173006
Dropper, glass, w/ 0.5- and 1-mL marks	5/pkg	1419705
Filter Paper, 12.5 cm (PO-19A only)	100/pkg	189457
Filtration Aid Solution (PO-19A only)	29 mL DB ¹	104633
Funnel, analytical, plastic, 65 mm (PO-19A only)	each	108367
Long Path Viewing Adapter (PO-19 only)	each	2412200
PhosVer® 3 Phosphate Reagent Powder Pillows	100/pkg	220999
Stoppers, for glass Color Viewing Tubes 173006	6/pkg	173106
Water, deionized	100 mL	27242

¹Dropping Bottle

Optional items

Description	Unit	Catalog no.
Caps, for plastic viewing tubes 466004	4/pkg	4660014
Color Viewing Tube, plastic, w/ cap	4/pkg	4660004
Hydrochloric Acid Solution, 6.0 N (1:1)	500 mL	88449
Phosphate Standard Solution, 1 mg/L	500 mL	256949
Phosphate Standard Solution, 10 mg/L	946 mL	1420416

Sample preparation for turbid water (PO-19A only)

- Fill a bottle to the shoulder with sample.
- Add one drop of Filtration Aid Solution to the bottle. Swirl to mix.
- Place the funnel in another bottle. Insert a folded filter into the funnel.
- Pour the water sample into the filter paper and allow the sample to filter through. Test this clear water sample for phosphate.