



pH, Wide Range (4 to 10 pH units)
For test kit 147011 (Model 17-N)

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Test preparation

- Assemble the color comparator by placing the color disc on the center pin with the lettering facing out.
- Rinse tubes with the sample water before testing. Rinse with deionized water after testing.
- To check reagent accuracy, use a buffer solution in place of the sample (see Optional Items).
- Chlorine interferes at concentrations over 1 mg/L Cl_2 . To remove chlorine from the sample water, add one drop of 0.1 N sodium thiosulfate solution (see Optional Items) to 25 mL of sample and mix. Use 5 mL of this treated sample in the test procedure. The sodium thiosulfate will remove up to 10 mg/L chlorine.
- Read the pH at the matching disc segment or as the value halfway between the two segments closest in color.
- If the disc becomes wet, carefully separate the two halves of the plastic case and dry them and the colored plastic insert with a soft cloth. Assemble the parts when completely dry.

CAUTION: Handle chemical standards and reagents carefully. Review Material Safety Data Sheets before handling chemicals.

Replacement Items

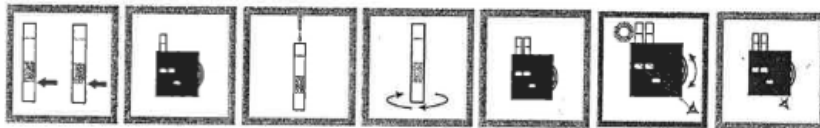
Description	Unit	Catalog no.
Color Comparator Box	each	173200
Color Disc, pH 4-10, wide range	each	990100
Color Viewing Tube, plastic, with cap	4/pkg	4660004
Wide Range pH Indicator Solution	100 mL	2329332

Optional items

Description	Unit	Catalog no.
Buffer Solution, pH 7.00	500 mL	1222249
Caps, for plastic viewing tubes 4660004	4/pkg	4660014
Color Viewing Tube, glass	6/pkg	173006
Deionized Water	500 mL	27249
Sodium Thiosulfate Standard Solution, 0.1 N	100 mL	32332
Stoppers, for glass viewing tubes 173006	6/pkg	173106



Test procedure



1. Fill two tubes to the first (5-mL) line with sample.

2. Insert one tube into the left opening of the comparator.

3. Add six drops of Wide Range pH Indicator Solution to the second tube.

4. Swirl to mix.

5. Insert the second tube into the right opening of the comparator.

6. Hold the comparator so that a daylight or fluorescent light source is directly behind the tubes. Rotate the color disc until the colors in the front windows match. The best match may occur between two color segments.

7. Read the result (in pH units) in the scale window. If the best match occurs between two color segments, determine the value halfway between the two printed numbers.

pH (Wide Range)*
Hach Test Kit (Model 17-N)

**These are teacher written directions.*

Safety tip: Wear gloves and goggles.

1. Before each test, rinse each test tube with distilled water and empty into the hazardous water bucket.
2. Rinse each test tube with your collected sample water thoroughly. Empty into hazardous water bucket.
3. Shake your collected water sample. **Fill both test tubes with sample water to the first line.** (On most tubes it is the bottom border of the frosted section, the "5 ml" mark. The meniscus should be touching the bottom border).
4. Add 6 drops of wide range pH 4 indicator solution to one tube and swirl to mix. This is your prepared sample tube. Place this tube into the right (nearest to the center) slot of the comparator wheel.
5. Place the other tube into the left opening.
6. Look at the comparator in a location where you notice the color difference the most – probably not in the direct sun. Rotate the wheel until the color on the wheel matches the color of the prepared sample.
7. When the colors match, the pH value of the sample can be read through the window.
8. Record the pH value.
9. Empty both tubes into the hazardous water bucket and rinse with distilled water.
- 10. Store the color wheel in the black plastic envelope.** It needs to be protected from the light in order for the colors not to fade.
11. Wash your hands.

pH Data Sheet

Step #1: Fill out all the information below

School: _____
 Teacher: _____
 Names of Monitors: _____
 Stream Name: _____
 Test Location: _____

Weather: _____
 Air Temperature: _____
 Test Kit: (Hach, LaMotte or other) _____
 Date: _____
 Time: _____

Step #2: Record at least 3 replicate sample values in the chart below. Values should be similar, re-test any samples with values at least 2.0 pH units different from other replicates.

Replicate #1	Replicate #2	Replicate #3	Replicate #4
_____pH units	_____pH units	_____pH units	_____pH units

Step #3: Record the **mode**, the most common pH value (*this is different than the average!*) of your 3 replicate samples in the box below. Record any comments or observations

Test Result (record the mode)	_____pH units	Comments: _____ _____ _____
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Step #4: Record two pH test results from previously recorded data for your site in table below.

Step #5: Record comments from your comparison.

Test Results Date: _____	_____pH units	Comments: _____ _____ _____
Test Results Date: _____	_____pH units	

Step #6: Have the recorder sign once each step is complete.

Test Completed _____ Date: _____

Data Reviewed _____ Date: _____

Data Transferred to Master Data Sheet _____ Date: _____



Optimal pH Values for Salmon		
Optimal	Generally Acceptable	Poor
7-8	6.5-8.5	Below 6.5

Optimal pH Values: pH values between 7.0-8.0 are ideally suited to support a diverse aquatic system. If pH declines below 6.5, fewer salmon eggs hatch and aquatic insect levels drop.

Stream Conditions:

Stream banks

- Streamside vegetation trampled
- Banks collapsed/eroded
- Banks artificially reinforced (concrete, rip rap, etc.)
- Debris/trash adjacent to stream

Stream channel

- Mud/silt in or entering stream
- Stream modifications (dams, culverts or other in-stream structures)
- Excessive vegetation in stream (algae, canary grass, etc.)
- Debris/trash in stream

Other

- Cattle or other livestock in stream or with unrestricted access to stream
- Drainage ditches entering stream
- Discharge pipes entering stream

Adjacent Land Uses:

Residential: (put X in box of most prevalent, check others if present)

- Single family housing
- Multi-family housing (apartments, etc.)
- Commercial development (shopping center, mini-mall, etc.)
- Light industry

Agricultural: (put X in box of most prevalent, check others if present)

- Grazing/Pasture land
- Barns or other animal holding areas
- Cropland
- Logging/ tree plantations

Roads/Pavement: (put X in box of most prevalent, check others if present)

- Paved roads
- Parking lots
- Unpaved roads

Construction Activity: (put X in box of most prevalent, check others present)

- Residential housing units
- Commercial developments (shopping center or minimal, etc.)
- Industrial
- Roads or parking lots