Carbon Dioxide, Dissolved Oxygen and pH Test Kit

CA-10WR (143801) DOC326.97.00085

Test preparation

CAUTION: ⚠ Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

- Hold the dropper vertically above the sample. Do not let the dropper touch the bottle during the titration.

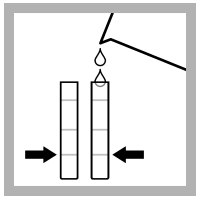
Dissolved oxygen

- Air bubbles cause incorrect results. To prevent air bubbles below the stopper, tilt the bottle and tap the stopper quickly on the bottle neck. Look below the stopper to make sure that there are no air bubbles.
- Keep the sodium thiosulfate away from direct sunlight.
- If the sample contains high concentrations of chloride (e.g., sea water) the floc that develops in the bottle does not fall. Wait 4 or 5 minutes after the floc develops, then continue the test.
- If the high-range procedure gives a low result, use the prepared sample for the titration in the low-range procedure.

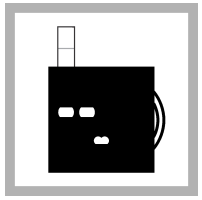
pH

- Put the color disc on the center pin in the color comparator box (numbers to the front).
- Use sunlight or a lamp as a light source to find the color match with the color comparator box.
- If the color match is between two segments, use the value that is in the middle of the two segments.
- If the color disc becomes wet internally, pull apart the flat plastic sides to open the color disc. Remove the thin inner disc. Dry all parts with a soft cloth. Assemble when fully dry.
- Rinse the tubes with sample before the test. Rinse the tubes with deionized water after the test.
- More than 1 mg/L chlorine interferes with the test. To remove chlorine from the sample, add 1 drop of 0.1 N sodium thiosulfate solution to 25 mL of sample and mix. Use this dechlorinated sample in the test procedure. The sodium thiosulfate removes a maximum of 10 mg/L chlorine from the sample.
- To verify the test accuracy, use a buffer solution as the sample.

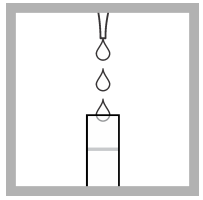
Test procedure—pH (4–10 pH units)



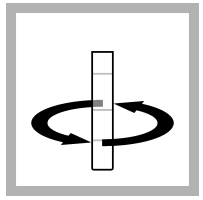
1. Fill two tubes to the first line (5 mL) with sample.



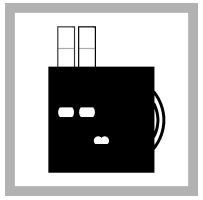
2. Put one tube into the left opening of the color comparator box.



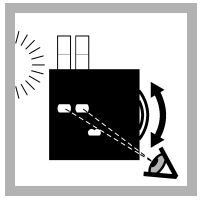
3. Add 6 drops of wide range pH indicator solution to the second tube.



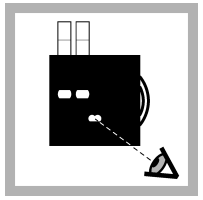
4. Swirl to mix.



5. Put the second tube into the color comparator box.



6. Hold the color comparator box in front of a light source. Turn the color disc to find the color match.



7. Read the result in pH units in the scale window.

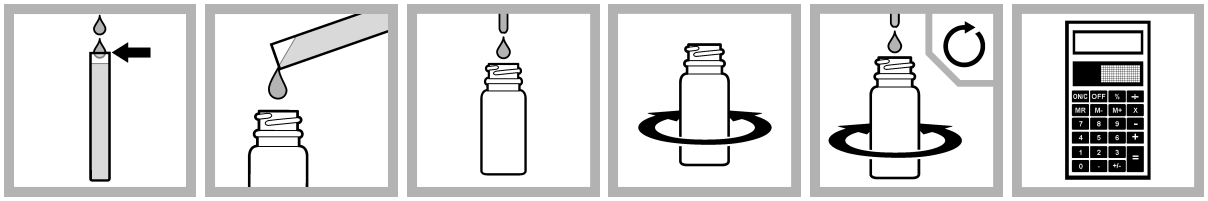
Replacement items

Description	Unit	Item no.
Dissolved Oxygen 1 Reagent Powder Pillows, 60 mL	100/pkg	98199
Dissolved Oxygen 2 Reagent Powder Pillows, 60 mL	100/pkg	98299
Dissolved Oxygen 3 Reagent Powder Pillows	100/pkg	98799
Phenolphthalein Indicator Solution, 1 g/L	15 mL SCDB	189736
Sodium hydroxide standard solution, 0.01 N	100 mL MDB	67132
Sodium Thiosulfate Standard Solution, stabilized, 0.0109 N	100 mL MDB	2408932
Wide range pH indicator solution	100 mL MDB	2329332
Clippers	each	96800
Color disc, pH, wide range	each	990100
Bottle, BOD, 60 mL, with stopper	each	190902
Bottle, square, glass, 29 mL	6/pkg	43906
Measuring tube, plastic, 5.83 mL	each	43800
Color comparator box	each	173200
Glass viewing tubes, 18 mm	6/pkg	173006
Stoppers for 18-mm glass tubes and AccuVac Ampuls	6/pkg	173106

Optional items

Description	Unit	Item no.
pH 7.0 buffer solution, colorless	500 mL	1222249
Sodium thiosulfate, 0.1 N	100 mL MDB	32332
Water, deionized	500 mL	27249

Test procedure—Carbon dioxide (0–100 mg/L CO_2)



1. Fill the measuring tube with sample.

2. Pour the sample into the mixing bottle.

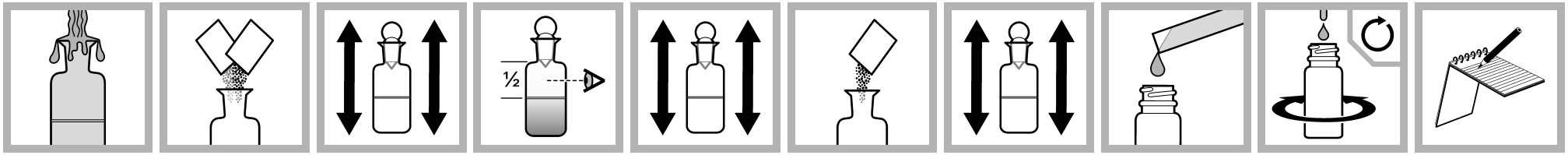
3. Add one drop of the Phenolphthalein Indicator Solution.

4. Turn the bottle left and right to mix.

5. Add the Sodium Hydroxide Solution by drops. Mix after each drop. Count the drops until a pink color stays for 30 seconds.

6. Multiply the number of drops of the sodium hydroxide solution by 5 to get the result in mg/L.

Test procedure—Dissolved oxygen (0–10 mg/L O_2)



1. Fill the dissolved oxygen bottle with sample. Let the water overflow for 2 to 3 minutes.

2. Add the contents of one Dissolved Oxygen 1 Powder Pillow and one Dissolved Oxygen 2 Powder Pillow.

3. Immediately put the stopper on the bottle. Make sure that no air bubbles are below the stopper. Shake the bottle vigorously.

4. A brown-orange floc develops. The floc slowly falls. Wait until the top half of the bottle is clear.

5. Shake the bottle again. Wait until the top half of the bottle is clear.

6. Remove the stopper. Add the contents of one Dissolved Oxygen 3 Powder Pillow.

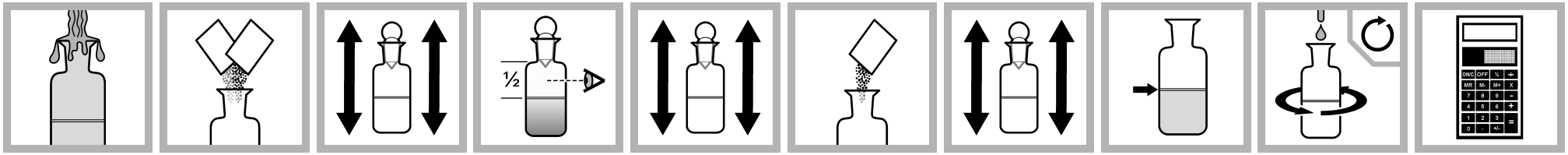
7. Immediately put the stopper on the bottle. Shake the bottle. The floc dissolves and a yellow color develops.

8. Fill the measuring tube with the prepared sample. Pour the prepared sample into the mixing bottle.

9. Add the Sodium Thiosulfate solution by drops. Mix after each drop. Count the drops until the solution is colorless.

10. Record the number of drops. The number of drops of the titrant solution is equal to the result in mg/L.

Test procedure—Dissolved oxygen (0–1 mg/L O_2)



1. Fill the dissolved oxygen bottle with sample. Let the water overflow for 2 to 3 minutes.

2. Add the contents of one Dissolved Oxygen 1 Powder Pillow and one Dissolved Oxygen 2 Powder Pillow.

3. Immediately put the stopper on the bottle. Make sure that no air bubbles are below the stopper. Shake the bottle vigorously.

4. A brown-orange floc develops. The floc slowly falls. Wait until the top half of the bottle is clear.

5. Shake the bottle again. Wait until the top half of the bottle is clear.

6. Remove the stopper. Add the contents of one Dissolved Oxygen 3 Powder Pillow.

7. Immediately put the stopper on the bottle. Shake the bottle. The floc dissolves and a yellow color develops.

8. Pour the prepared sample from the bottle until the volume in the bottle is 30 mL.

9. Add the Sodium Thiosulfate solution by drops. Swirl to mix after each drop. Count the drops until the color changes to colorless.

10. Multiply the number of drops of the titrant solution by 0.2 to get the result in mg/L.

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