DISSOLVED OXYGEN TEST KIT

CODE 5856

For determining the dissolved oxygen content of water, this test kit uses the azide modification of the Winkler Method and employs a LaMotte Direct Reading Titrator in the final titration.

QUANTITY	CONTENTS	CODE
30	*Manganous Sulfate Solution	*4167-G
30	*Alkaline Potassium Iodide Azide	*7166-G
30	*Sulfuric Acid, 1:1	*6141WT-G
60	*Sodium Thiosulfate, 0.025N	*4169-H
30	Starch Indicator Solution	4170WT-G
1	Direct Reading Titrator, 0 - 10 Range	0377
1	Test Tube, 5-10-12.9-15-20-25 mL, glass, w/cap	0608
2	Bottles, Water Sampling, 60 mL, glass	0688-DO
1	Graduated Cylinder, 25 mL, plastic	2-2297

***WARNING:** Reagents marked with a * are considered to be potential health hazards. To view or print a Material Safety Data Sheet (MSDS) for these reagents see MSDS CD or www.lamotte.com. To obtain a printed copy, contact LaMotte by e-mail, phone or fax..

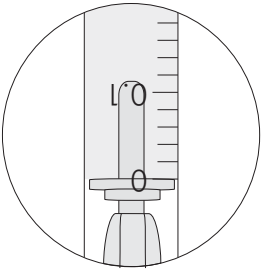
To order individual reagents or test kit components, use the specified code number.

NOTE: A Check Standard is needed to perform an "EPA Accepted" test.

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

DIRECT READING TITRATOR INSTRUCTIONS

1. Fill the titration tube to the specified line with the water sample.
2. Add the reagents as specified in the instruction for the individual test method.
3. Cap the tube with the special titration tube cap. Mix by swirling gently.
4. Depress the plunger of the Titrator.
5. Insert the adapter tip into the special plastic plug in the titrating solution bottle.
6. Invert the bottle. Hold the bottle and the Titrator firmly together. Slowly pull out the plunger until the large ring on the plunger is opposite the zero (0) line on the scale.



7. If an air bubble appears in the Titrator barrel or the adapter tip, partially fill the barrel and pump the titration solution back into the inverted reagent bottle to expel the bubble.

   NOTE: When filling the Titrator from a container without a special plug, submerge the adapter tip below the surface of the solution and pull out the plunger. Remove air bubbles.
8. Turn the bottle right side up and remove the Titrator.
9. Insert the adapter tip into the opening in the titrator tube cap. Slowly depress the plunger to dispense the titrating solution. Gently swirl the tube to mix the solution.
10. Continue adding the titrating solution until the specified color change occurs. If the color change does not occur when the large ring on the plunger reaches the bottom of the scale, refill the Titrator to the zero line. Continue the titration until the color change occurs.
11. Read the test result directly from the scale where the large ring on theTitrator meets the Titrator barrel. If the Titrator was refilled to reach the final color change, add the total amounts of titrant used to determine the final test result.
12. If no additional tests are to be made, discard the remaining titrating solution in the Titrator. Do not return the titrating solution to the reagent bottle. Thoroughly rinse the titration tube and the Titrator. Do not remove the plunger or the adapter tip from the Titrator.

DISSOLVED OXYGEN TEST PROCEDURE

COLLECTION & TREATMENT OF THE WATER SAMPLE

Steps 1 through 4 below describe proper sampling technique in shallow water. For sample collection at depths beyond arm's reach, special water sampling apparatus is required (e.g., the LaMotte Water Sampling Chamber, Code 1060; Model JT-1 Water Samplers, Code 1077; Water Sampling Outfit, Code 3103; or Code 3-0026 Water Sampling Bottle).

1. To avoid contamination, thoroughly rinse the Water Sampling Bottle (0688-DO) with sample water three times.
2. Tightly cap the bottle and submerge to the desired depth. Remove cap and allow the bottle to fill.
3. Tap the sides of the submerged bottle to dislodge any air bubbles clinging to the inside. Replace cap while the bottle is still submerged.
4. Retrieve bottle and examine it carefully to make sure that no air bubbles are trapped inside. Once a satisfactory sample has been collected, proceed immediately with Steps 5 & 6 to "fix" the sample.

   NOTE: Be careful not to introduce air into the sample while adding the reagents in Steps 5 & 6. Simply drop the reagents into sample. Cap carefully, and mix gently.
5. Add 8 drops of *Manganous Sulfate Solution (4167) and 8 drops of *Alkaline Potassium Iodide Azide (7166). Cap and mix by inverting several times. A precipitate will form. Allow the precipitate to settle below the shoulder of the bottle before proceeding.
6. Add 8 drops of *Sulfuric Acid, 1:1. Cap and gently shake until the reagent and the precipitate have dissolved. A clear-yellow to brown-orange color will develop, depending on the oxygen content of the sample.

NOTE: Following the completion of Step 6, contact between the water sample and the atmosphere will not affect the test result. Once the sample has been "fixed" in this manner, it is not necessary to perform the actual test procedure immediately. Thus, several samples can be collected and "fixed" in the field, and then carried back to a testing station or laboratory where the test procedure is to be performed.

TITRATION

1. Fill the test tube (0608) to the 20 mL line with the "fixed" sample and cap.

   NOTE: For more precise oxygen measurements, fill graduated cylinder (2-2297) to 20 mL line with sample. Transfer to test tube (0608). Cap.

2. Fill the Direct Reading Titrator (0377) with *Sodium Thiosulfate, 0.025N (4169).

3. Insert the Titrator into the center hole of the test tube cap. While gently shaking the tube, slowly press the plunger to titrate until the yellow-brown color is reduced to a very faint yellow.

   NOTE: If the color of the "fixed" sample is already a very faint yellow, skip to Step 4.

4. Remove the Titrator and cap. Be careful not to disturb the Titrator plunger, as the titration begun in Step 3 will be continued in Step 5. Add 8 drops of Starch Indicator Solution (4170WT). Sample should turn blue.

5. Replace the cap and Titrator. Continue titrating until the blue color just disappears. Read the test result directly from the scale where the large ring on the Titrator meets the Titrator barrel. Record as ppm dissolved oxygen.

   NOTE: Each minor division on the Titrator scale equals 0.2 ppm.

6. If the plunger tip reaches the bottom line on the Titrator scale (10 ppm) before the endpoint color change occurs, refill the Titrator and continue the titration. When recording the test result, be sure to include the value of the original amount of reagent dispensed (10 ppm).

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PO Box 329 • Chestertown • Maryland • 21620 • USA
800-344-3100 • 410-778-3100 (Outside U.S.A.) • Fax 410-778-6394
Visit us on the web at www.lamotte.com

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