TOTAL HARDNESS KIT

Code 4482-DR-LI-01 | Direct Reading Titrator, 0-200 ppm

QUANTITY	CONTENTS	CODE
15 mL	*Hardness Reagent #5	*4483-E
15 mL	*Hardness Reagent #6 Solution	*4485-E
60mL	Hardness Reagent #7	4487DR-H
1	Test Tube, 5-10-12.9-15-20-25 mL, glass, w/cap	0608
1	Direct Reading Titrator, 0-200 Range	0382
1	Pipet, 0.5 mL, plastic	0353

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

*Reagent is a potential health hazard. **READ SDS:** lamotte.com
Emergency information:
Chem-Tel USA 1-800-255-3924
Int'l, call collect, 813-248-0585

NOTE: Read the Direct Reading Titrator Instruction Manual before proceeding. The Titrator is calibrated in terms of total hardness expressed as parts per million (ppm) calcium carbonate ($CaCO_3$). Each minor division on the Titrator scale equals 4 ppm $CaCO_3$.

PROCEDURE

1. Fill the test tube (0608) to 12.9 mL line with sample water.
2. Add five drops of *Hardness Reagent #5 (4483). Swirl to mix.
3. Add five of Hardness Reagent #6 Solution (4485) and swirl to mix. Solution will turn red if hardness is present. If solution is blue, there is no measurable amount of hardness.
4. Fill the Direct Reading Titrator (0382) with Hardness Reagent #7 (4487DR). Insert Titrator in the center hole of the test tube cap.
5. While gently swirling the titration tube, slowly press the plunger to titrate the sample until the red color changes to blue. Read the test result directly from the scale where the large ring on the Titrator meets the Titrator barrel. The result is expressed as Total Hardness in ppm $CaCO_3$.

   EXAMPLE: Plunger tip is 3 minor divisions below line 80. Test result is 80 plus (3 divisions x 4) equals 92 ppm.6.
6. If the plunger tip reaches the bottom line on the Titrator scale (200 ppm) before the 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 (200 ppm).
7. To convert ppm Hardness to grains per gallon (gpg), multiply by 0.058. Record as gpg Hardness as $CaCO_3$.

gpg $CaCO_3$ = ppm $CaCO_3$ x 0.058

ANALYSIS OF HARNESS IN SALT WATER

When sea and estuarine waters containing very high levels of mineral salts are tested, the sample must be diluted before titration. This test kit contains a calibrated pipet for performing the dilution described below.

1. Use the 0.5 mL pipet (0353) to transfer 0.5 mL of the salt water sample to the test tube (0608).
2. Dilute to the 12.9 mL line with distilled water (a 1 to 25.8 dilution).
3. Follow Steps 2 through 6 above. Multiply the Titrator reading by 25.8. Record as ppm Total Hardness as $CaCO_3$.

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