

TITRATION TEST

P/M & P/T ALKALINITY (1 mL = 5 mg)

COMPONENTS:

1 x 5334	Instruction
*1 x R-0627S-10-E	Sulfuric Acid N/10, 16 oz
*1 x R-0627S-50-E	Sulfuric Acid N/50, 16 oz
1 x R-0637-C	Methyl Orange Indicator, 2 oz, DB
1 x R-0638G-C	Phenolphthalein Indicator, 2 oz w/ green cap, DB
1 x R-0645-C	Total Alkalinity Indicator, 2 oz, DB
1 x R-0711-C	Barium Chloride Solution 20%, 2 oz

*Kit may include only one of these reagents.

APPARATUS REQUIRED FOR TEST:

Suitable burets, pipets, graduates, and flasks

TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE
800-TEST KIT (800-837-8548).

PROCEDURE:

CAREFULLY READ AND FOLLOW PRECAUTIONS ON REAGENT LABELS.
KEEP REAGENTS AWAY FROM CHILDREN.

NOTE: When dispensing reagents from dropper bottles, **always** hold bottle in a vertical position.

P/M & P/T Alkalinity Test

1. Select sample size.

NOTE: The sample size will depend on the expected alkalinity and reagent used.

Using R-0627S-50 Sulfuric Acid N/50 (1 mL = 1 mg alkalinity as CaCO₃):

For a 50 mL sample, multiply by 20.

For a 25 mL sample, multiply by 40.

For a 20 mL sample, multiply by 50.

For a 10 mL sample, multiply by 100.

Using R-0627S-10 Sulfuric Acid N/10 (1 mL = 5 mg alkalinity as CaCO₃):

For a 50 mL sample, multiply by 100.

For a 25 mL sample, multiply by 200.

For a 20 mL sample, multiply by 250.

For a 10 mL sample, multiply by 500.

To determine calculations for other strengths:

$$\text{Alkalinity as mg CaCO}_3/\text{L} = \frac{A \times B \times 50,000}{\text{mL sample}}$$

A = mL acid used

B = normality of acid used

- Using a pipet, add water to be tested to flask.
- Add 5 drops R-0638G Phenolphthalein Indicator. Swirl to mix. Sample will turn red if P alkalinity is present.
- Titrate with Sulfuric Acid (R-0627S-10 or R-0627S-50) in buret, swirling constantly, until color changes from red to colorless.
- Multiply buret reading by chosen equivalence. Record as parts per million (ppm) P alkalinity as calcium carbonate (CaCO₃).
- If M alkalinity is to be determined, add 5 drops R-0637 Methyl Orange Indicator. Swirl to mix. Sample will turn yellow.
If T alkalinity is to be determined, add 5 drops R-0645 Total Alkalinity Indicator. Swirl to mix. Sample will turn green.

7. Continue titrating, swirling constantly, until color changes from yellow to orange (M alkalinity) or from green to red (T alkalinity).
8. Multiply buret reading by chosen equivalence. Record as part per million (ppm) T alkalinity or M alkalinity as calcium carbonate (CaCO_3).

NOTE: To determine hydroxyl or caustic alkalinity only, add 2 mL R-0711 Barium Chloride Solution 20% to the sample immediately after Step 2 and mix. Proceed to Steps 3-5.

NOTE: To convert parts per million (ppm) to grains per gallon (gpg), divide by 17.1.

