

# Taylor's Alkalinity Test Kits

## INTRODUCTION

**A**lkalinity is the acid-neutralizing capacity of water. Although many bases (such as borates, phosphates, and silicates) contribute to a water's alkalinity, it is primarily a function of the carbonate, bicarbonate, and hydroxide concentrations. **Alkalinity control is important in many processes** including municipal water and wastewater treatment, paper and textile manufacturing, commercial laundering, warewashing, beverage production, and boiler and cooling system operation.

Alkalinity is determined by titration with a standard acid to a designated pH and recorded as either **P, M, or T alkalinity**. P alkalinity is titrated to an endpoint pH of 8.3 using phenolphthalein as the indicator, M alkalinity is titrated to an endpoint pH of 4.6 using methyl orange as the indicator, and T alkalinity is titrated to an endpoint pH of 4.5 using a blended indicator (bromocresol green/methyl red). If sulfuric acid is being added to modify pH, it will also alter the P/T alkalinity relationship.



Taylor's K-1533PM will perform 140 tests for P/M alkalinity at 100 ppm.

## ALKALINITY KITS

### K-1512

Drop test (laundry test using  $H_2SO_4$ ); 1 drop = 10 or 50 ppm P/T alkalinity as  $CaCO_3$

### K-1527

Drop test (using  $H_2SO_4$ ); 1 drop = 10 ppm P/T alkalinity as  $CaCO_3$

### K-1530

Drop test (using  $H_2SO_4$ ); 1 drop = 10 ppm **total** alkalinity as  $CaCO_3$

### K-1531

Drop test (using  $H_2SO_4$ ) for **caustic soda**; 1 drop = 0.1 or 1% **caustic** alkalinity as NaOH

### K-1533PM

Drop test (using  $H_2SO_4$ ); 1 drop = 10 or 50 ppm P/M alkalinity as  $CaCO_3$

### K-1533PT

Drop test (using  $H_2SO_4$ ); 1 drop = 10 or 50 ppm P/T alkalinity as  $CaCO_3$

### K-1537

Drop test (using HCl); 1 drop = 10 or 50 ppm **hydroxyl** alkalinity as  $CaCO_3$

### K-1542 (combination kit)

Drop tests for **PET bottlers** measuring **M alkalinity** (using HCl); 1 drop = 10 ppm  $CaCO_3$ ; **total hardness\*** (EDTA titration); 1 drop = 10 ppm  $CaCO_3$

### K-1575

Drop test (using HCl); 1 drop = 10 or 50 ppm P/M or P/T alkalinity as  $CaCO_3$

\* includes inhibitors to prevent metal interference



*the most trusted name in water testing*

**Taylor Technologies, Inc.**  
410-472-4340  
800-TEST KIT (837-8548)  
[www.taylortechnologies.com](http://www.taylortechnologies.com)

ISO 9001:2008 Certified

## USER BENEFITS



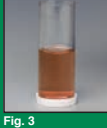


- Titrations do not require the ability to match colors, only the ability to see the **permanent color change** at the end-point of the reaction.
- Drop-test kits are practical for both **on- and off-site** testing.
- **Waterproof instructions** are printed on plastic-impregnated paper that resists fading and tearing.
- **Color coding** of reagent caps to instructions helps prevent mishaps.
- **Picture guides** to color transitions in the test reassure new users.
- Custom-molded, durable plastic cases provide **safe storage** for all tests.
- **Proven chemistries** are based on *Standard Methods for the Examination of Water and Wastewater*, APHA, Washington, DC, and/or *American Society for Testing and Materials*, ASTM, Philadelphia, PA. Some methods use proprietary chemistry developed by Taylor Technologies.

## ALSO AVAILABLE

- **Neutralizing amine** test (K-1682) for steam condensate where the only alkalinity is provided by the amine.
- Individual replacement reagents.
- A wide array of single- and multiparameter kits featuring color-matching and/or drop-count tests.
- Taylor's TTI® Colorimeter (M-3000); test 30+ parameters commonly encountered in commercial and industrial settings and transfer results to a PC database.
- Myron L Company portable instruments and calibration solutions (sold separately).
- Testing supplies and kit replacement parts (e.g., burets, flasks, test tubes, and test cells).
- **Video demonstrations** for new users posted on our website.
- Toll-free technical assistance at **800-TEST KIT**.

## REPRESENTATIVE TEST PROCEDURE

Reproduced from K-1533PM/K-1533PT instruction:

DROP TEST P/M & P/T ALKALINITY (1 drop = 10 or 50 ppm)		Instr. #5084
<p><b>COMPONENTS:</b>                      1 x 5084 Instruction                      1 x 9198G Sample Tube, Graduated (25 mL) w/ cap &amp; green dot, plastic                      *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-0687G-C Sulfuric Acid .12N, 2 oz w/ green cap, DB                      1 x R-0736G-C Sulfuric Acid .6N, 2 oz w/ green cap, DB                      *Kit includes only one of these indicators.</p> <p><b>TO ORDER REPLACEMENT PARTS AND REAGENTS CALL TOLL-FREE 800-TEST KIT (800-837-8548).</b></p> <p><b>PROCEDURE:</b>                      CAREFULLY READ AND FOLLOW PRECAUTIONS ON REAGENT LABELS. KEEP REAGENTS AWAY FROM CHILDREN.</p> <p><b>NOTE:</b> When dispensing reagents from dropper bottles, <b>always</b> hold bottle in a vertical position.</p> <p><b>P/M Alkalinity Test</b>  <b>NOTE:</b> For 1 drop = 10 ppm, use R-0687G Sulfuric Acid .12N.                      For 1 drop = 50 ppm, use R-0736G Sulfuric Acid .6N.</p> <p>1. Rinse and fill 25 mL sample tube (#9198G) to 25 mL mark with water to be tested.</p> <p><b>NOTE:</b> For results in grains per gallon (gpg), fill to 14.6 mL mark.</p>	<p>2. Add 3 drops R-0638G Phenolphthalein Indicator. Swirl to mix. Sample will turn pink (Fig. 1) if P alkalinity is present—proceed to Step 3. If sample is colorless, proceed to Step 4.</p> <p>3. Add R-0687G Sulfuric Acid .12N or R-0736G Sulfuric Acid .6N dropwise, swirling and counting after each drop, until color just changes from pink to colorless. Record drops as P reading.</p> <p>4. Add 3 drops R-0637 Methyl Orange Indicator. Swirl to mix. Sample will turn yellow (Fig. 2).</p> <p>5. Add R-0687G Sulfuric Acid .12N or R-0736G Sulfuric Acid .6N dropwise, swirling and counting after each drop, until color changes from yellow to orange (salmon pink) (Fig. 3). Record total drops (Steps 3 &amp; 5) as M reading.</p> <p>6. If R-0687G Sulfuric Acid .12N is used, multiply P reading by 10. Record as parts per million (ppm) P alkalinity as calcium carbonate. Multiply M reading by 10. Record as ppm M alkalinity as calcium carbonate.</p> <p><b>NOTE:</b> For 14.6 mL sample, record P reading as grains per gallon (gpg) P alkalinity as calcium carbonate. Record M reading as gpg M alkalinity as calcium carbonate.</p> <p>If R-0736G Sulfuric Acid .6N is used, multiply P reading by 50. Record as parts per million (ppm) P alkalinity as calcium carbonate. Multiply M reading by 50. Record as ppm M alkalinity as calcium carbonate.</p>	 <p>Fig. 1</p>  <p>Fig. 2</p>  <p>Fig. 3</p>
<p><b>P/T Alkalinity Test</b>  <b>NOTE:</b> For 1 drop = 10 ppm, use R-0687G Sulfuric Acid .12N.                      For 1 drop = 50 ppm, use R-0736G Sulfuric Acid .6N.</p> <p>1. Rinse and fill 25 mL sample tube (#9198G) to 25 mL mark with water to be tested.</p> <p><b>NOTE:</b> For results in grains per gallon (gpg), fill to 14.6 mL mark.</p> <p>2. Add 3 drops R-0638G Phenolphthalein Indicator. Swirl to mix. Sample will turn pink (Fig. 1) if P alkalinity is present—proceed to Step 3. If sample is colorless, proceed to Step 4.</p> <p>3. Add R-0687G Sulfuric Acid .12N or R-0736G Sulfuric Acid .6N dropwise, swirling and counting after each drop, until color just changes from pink to colorless. Record drops as P reading.</p> <p>4. Add 5 drops R-0645 Total Alkalinity Indicator. Swirl to mix. Sample will turn green (Fig. 4).</p> <p>5. Add R-0687G Sulfuric Acid .12N or R-0736G Sulfuric Acid .6N dropwise, swirling and counting after each drop, until color changes from green to red (Fig. 5). Record total drops (Steps 3 &amp; 5) as T reading.</p>	<p><b>NOTE:</b> For 14.6 mL sample, record P reading as grains per gallon (gpg) P alkalinity as calcium carbonate. Record T reading as gpg T alkalinity as calcium carbonate.</p> <p>If R-0736G Sulfuric Acid .6N is used, multiply P reading by 50. Record as parts per million (ppm) P alkalinity as calcium carbonate. Multiply T reading by 50. Record as ppm T alkalinity as calcium carbonate.</p> <p><b>NOTE:</b> For 14.6 mL sample, multiply P reading by 5. Record as grains per gallon (gpg) P alkalinity as calcium carbonate. Multiply T reading by 5. Record as gpg T alkalinity as calcium carbonate.</p>	 <p>Fig. 4</p>  <p>Fig. 5</p>
(OVER)		<p>Record as parts T reading by 10.</p> <p>Instr. #5084</p>



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