WATERTECH of America, Inc.

ANALYTICAL TEST METHODS

Number: **TTKIT-ALKA**

"P", "M", "OH" ALKALINITY TEST
TITRATION METHOD

PROCEDURE:

1. Measure 50 ml of the water to be tested in the graduated cylinder.
2. Pour into the casserole.
3. Add 3 drops of PHENOLPHTHALEIN INDICATOR SOLUTION to the casserole and stir.
4. If the water does not change to a pink color, there is no "P" Alkalinity present, and the reading is reported as "zero". If the water does change to a pink color, "P" Alkalinity is present and the test should be continued.
5. By squeezing the plastic bottle of the automatic burette, force the SULFURIC ACID SOLUTION slowly from the burette to just above the zero mark. Then allow the excess to drain back automatically into the plastic bottle.
6. While stirring the sample constantly, add the SULFURIC ACID SOLUTION slowly from the burette to the casserole until the pink color disappears and the water turns clear or resumes the original color of the sample before the PHENOLPHTHALEIN INDICATOR SOLUTION was added. This is the endpoint. Read the burette. The "P" Alkalinity is the burette reading multiplied by 20.
7. To the same sample without refilling the burette, add 3 to 4 drops of METHYL PURPLE INDICATOR SOLUTION to the casserole and stir.
8. If the water changes to a purple color, the "M" Alkalinity is equal to the "P" Alkalinity. If the water changes to a green color, "M" Alkalinity is present and the test should be continued.
9. While stirring the water constantly, add SULFURIC ACID SOLUTION slowly from the burette to the casserole until the green color changes to purple. This is the endpoint. Read the burette. The "M" Alkalinity is equal to the total ml of SULFURIC ACID SOLUTION used multiplied by 20.

RESULTS:

When testing a 50 ml sample: (Burette reading of both the P and M titration in ml x 20 = ppm Total (P&M) Alkalinity as $CaCO_3$
EXAMPLE: 8.0 ml in "P" reading + 6.0 in "M" reading = 14 ml
"P" Alkalinity = 8.0 ml x 20 =160 ppm
"M" Alkalinity =14 x 20 = 280 ppm

NOTE A: If the endpoint color is difficult to see, repeat the entire test using 15 drops of METHYL PURPLE INDICATOR SOLUTION.

NOTE B: Just before the endpoint is reached, the green color fades to a gray color and then becomes dark purple. The endpoint is the first appearance of a permanent purple color.

NOTE C: The "OH" Alkalinity is calculated using the following formula: (2 P-M) = OH
EXAMPLE: [(2 x 160 ppm) - 280 ppm] = 40 ppm OH Alkalinity

REAGENTS AND APPARATUS FOR "P", "M", "OH" ALKALINITY TEST:

Watertech Replacement	Description
1500-Q	Sulfuric Acid Titrating Solution/Qt (1ml = 20ppm $CaCO_3$/50 ml)
1605-B	Phenolphthalein Indicator, 2 oz
3595-B	Methyl Purple Indicator, 2 oz
8010-PC	Burette Assembly/Complete/10 ml
37940	Graduated Cylinder, 50 ml plastic
9005	Casserole Dish, 140 ml

(different sizes available upon request)