

ALKALINITY TEST KIT FOR BOILER TEST

High Range

- 1 Fill the plastic measuring tube level full with the water to be tested. Pour the contents of the tube into the mixing bottle.
- 2 Open one Phenolphthalein Indicator Powder Pillow as shown in Figure 1. Add the contents of the pillow to the mixing bottle. Swirl to mix as shown in Figure 2.
- 3 If the water remains colorless after the addition of the phenolphthalein, the phenolphthalein alkalinity is zero. If this is the case, proceed to step 6.

WARNING: The chemicals in this kit may be hazardous to the health and safety of the user if inappropriately handled. Please read all warnings before performing the test and use appropriate safety equipment.

- 4 If the water becomes pink with the addition of the phenolphthalein, add Sulfuric Acid Standard Solution drop-wise while swirling to mix after each drop. Continue adding and counting the drops until the water becomes colorless.
- 5 The phenolphthalein alkalinity in mg/L as calcium carbonate (CaCO_3) is equal to the number of drops of sulfuric acid used times 20. To convert to grains per gallon, divide the mg/L value by 17.1.
- 6 Add the contents of one Bromcresol Green-Methyl Red Indicator Powder Pillow to the mixing bottle and swirl to mix. The color will change to blue-green.
- 7 Continue the drop-count procedure, adding Sulfuric Acid Standard Solution while counting the drops and swirling to mix until the color changes to pink.
- 8 The total (methyl orange) alkalinity in mg/L as CaCO_3 is equal to the total number of drops of Sulfuric Acid Standard Solution used in both Steps 4 and 7 times 20. To convert to gpg total alkalinity, divide the mg/L value by 17.1.

Low Range

- 1 Fill the mixing bottle to the 23mL mark with the water that to be tested.
- 2 Add the contents of one Phenolphthalein Indicator Powder Pillow and swirl to mix as shown in Figure 2.
- 3 If the water remains colorless, the phenolphthalein alkalinity is zero. Proceed to step 6. If the water becomes pink, proceed to Step 4.
- 4 Add Sulfuric Acid Standard Solution drop-wise while swirling to mix after each drop. Continue adding and counting the drops until the water becomes colorless.
- 5 The phenolphthalein alkalinity in mg/L as calcium carbonate (CaCO_3) is found by multiplying the number of drops of Sulfuric Acid Standard Solution used in Step 4 by 5. To convert to grains per gallon alkalinity, divide the mg/L value by 17.1.
- 6 Add the contents of one Bromcresol Green-Methyl Red Indicator Powder Pillow to the mixing bottle and swirl to mix. The color will change to blue-green.
- 7 Continue the drop-count procedure, adding Sulfuric Acid Standard Solution while counting the drops and swirling to mix until the color changes to pink.

8 The total (methyl orange) alkalinity in mg/L as CaCO₃ is found by multiplying the total number of drops of Sulfuric Acid Standard Solution used in both Steps 4 and 7 by 5. To convert to gpg total alkalinity, divide the mg/L value by 17.1.

TEST RESULTS EVALUATION CHART

ml of Reagent 1	0-0.05	0.06-0.12	0.13-0.15	0.16-0.25	Over 0.25
ppm as CaCO ₃	0-30	40-70	80-90	100-150	Over 150
Dosage per ton of water	0.15 lt	0.10 lt	0.05 lt	Satisfactory	Blowdown

REPLACEMENTS

Cat. No.	Description	Unit
24374-01	Alkalinity Reagent Set, Drop Count Titration 0-400 mg/L as CaCO ₃	100 tests
943-99	(contains Bromcresol Green-Methyl Red Indicator Powder Pillows	
942-99	Phenolphthalein Indicator Powder Pillows Sulfuric Acid Standard Solution, 0.035N)	
23497-32	491 mg/L as NaCl (not included in test kit)	118mL MDB*
2327-06	Mixing Bottle	pk/6
438-00	Mixing tube, plastic, 5.83 mL	each

*Marked Dropping Bottle