Hanna Titration Procedure

Alkalinity of Water - 0 to 2500 mg/L CaCO₃, pH 4.5 Endpoint

Description

Method for the determination of total (methyl red) alkalinity in water by titration of a sample to pH 4.5. The results are expressed in mg/L (ppm) as calcium carbonate.

For the determination of phenolphthalein alkalinity, set the endpoint to pH 8.3.

Reference

Standard Methods for the Examination of Water and Wastewater 21st edition, Method 2320B.

Meter

Automatic Potentiometric Titrator <u>HI932</u>

Electrodes

| Combination pH Electrode | <u>HI1131B</u> |
|--------------------------|-----------------|
| Temperature Probe | <u>HI7662-T</u> |

Reagents

 • 0.1N Hydrochloric Acid (1 L)
 HI70463

 • Deionized Water (1 gal)
 HI70436

Accessories

- Storage Solution (500 mL)
- Electrode Fill Solution (4 x 30 mL)
- pH 4.01 Buffer Solution (500 mL)
- pH 7.01 Buffer Solution (500 mL)
- pH 10.01 Buffer Solution (500 mL) <u>HI7010L</u>

• 100 mL Plastic Beaker (10 pcs)

• 50 mL Class A Volumetric Pipette

Device Preparation:

• Connect the pH electrode and temperature probe to the titrator.

HI70300L

HI7082

HI7004L

HI7007L

HI740036P

- Install a 25 mL burette filled with 0.1N hydrochloric acid (HI70463) on pump one and verify that no air bubbles are present in the burette or tubing. If necessary prime the burette until all the air has been removed completely.
- For the determination of the exact concentration of the 0.1N hydrochloric acid, follow HI0002EN 0.1N Hydrochloric Acid Titrant Concentration.
- Press "Select Method" from the main screen. Use the arrow keys to highlight Alkalinity of Water and press "Select".

Electrode Preparation:

- Press "Mode" from the main screen, if necessary select the analog board and press "pH".
- Calibrate the electrode using pH 4.01, 7.01 and 10.01 buffers. Refer to the instruction manual for calibration procedure.

Sample Preparation:

• Use a Class A volumetric pipette to transfer exactly 50.00 mL of sample to a clean 100 mL plastic beaker.

Analysis:

- Place the beaker under the stirrer assembly and lower it to immerse the pH electrode, temperature sensor and stirrer.
 Ensure that the reference junction of the pH electrode is
 5 to 6mm below the surface. If necessary add extra deionized water.
- **NOTE**: The dispensing tip should be slightly submerged in the sample.
- Press "Start/Stop", the titrator will start the analysis.
- At the end of the titration, when pH 4.50 is reached, "Titration Completed" will appear with the result. The result is expressed in mg/L as calcium carbonate.
- Remove the pH electrode, temperature probe and stirrer from the sample and rinse them thoroughly with deionized water.
- Record the result