



**Overview** Phenolphthalein ("p") and total alkalinity of a basic aqueous sample was determined using the preset endpoint technique to pH 8.3 and pH 4.5. The sample is titrated with hydrochloric acid and the endpoint monitored with an Orion pH electrode. The Orion 960 Titrator determines the endpoints and calculates the "p" alkalinity and total alkalinity concentration of the sample.

**Market** Environmental

**Species Measured** Alkalinity, P & T

**Sample** Aqueous NaOH

**Sample Size** 50 mL

**Typical Concentration** 1105 ppm (total)

**Technique #** 8 Preset Endpoint

**Electrode** Ross pH 8102 or pH 9102

**Solutions** 0.01M hydrochloric acid; 0.1N NaOH standard solution ; deionized water (DI)

**Solutions preparation:** For 0.1M hydrochloric acid: Fill a 1L volumetric flask with about 500 mL of DI. Add 8.3 mL of concentrated hydrochloric acid. Mix and dilute to 1L.

**Titrant standardization:** Pipet 1.0 mL of 0.1M NaOH standard in a beaker. Add about 50 mL DI water. Titrate using technique 11 (standardize system), a reaction ratio of 1, and predose of 7 mL. See Orion 960 manual pp 146-149 for details

**Sample Prep** Accurately measure 5.0 mL of sample into an analysis beaker. Dilute to about 50 mL with DI. Titrate with hydrochloric acid.

## Statistics

**# of Trials** 1      **Mean** 1105      **%CV**      **Analysis Time** 4.4 minutes

**Comments** Rinse the electrodes, stirrer, and dispenser probe thoroughly between measurements with deionized water.

## Method Parameters

<b>Sample Volume/Weight</b>	5.0 mL	<b>Timed or Stability Readings</b>	5.0 sec timed
<b>Constant Increment</b>	10.0 mV	<b>Number of Endpoints</b>	2
<b>Max Titrant Volume</b>	10.0 mL	<b>Desired Units</b>	ppm (v)
<b>Molecular weight</b>	100.09	<b>Predose</b>	
<b>Prestir</b>	3.0 sec	<b>Additional Parameters</b>	preset pH (1) is 8.30 and preset pH (2) is 4.50. Results expressed as ppm CaCO <sub>3</sub> .
<b>Reaction Ratio</b>	0.5		



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Potentiometric Titration Application Notes

Applications Log # 38E

## **Results**