



# Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 255

## Overview

The concentration of ammonia was determined by an Thermo technique called KAP Analysis. Aliquots of an ammonium chloride standard are added automatically to a sample in water containing an Orion ammonia electrode. The Orion 960 Autochemistry System calculates the electrode slope, sample concentration, and verifies the results through a spike recovery test.

---

<b>Industry</b>	Chemical Industry
<b>Species Measured</b>	Ammonia
<b>Sample</b>	Sulfuric Acid
<b>Sample Size</b>	10mL
<b>Typical Concentration</b>	2800ppm(v)
<b>Technique</b>	# 2 Multiple Known Addition
<b>Electrode</b>	Ammonia 9512BN
<b>Solutions</b>	0.1M NH <sub>4</sub> Cl ammonium STD 951006; pH ISA 951211; Electrode interference fill 951002; 0.2M Na <sub>2</sub> EDTA 650501; deionized water
<b>Sample Prep</b>	Accurately pipet 10 mL of sample into a 100 mL volumetric flask, fill to the mark with deionized water and mix thoroughly. Pipet a 1 mL aliquot of this solution into an analysis beaker, add 10 mL of 0.2 M EDTA, 50 mL deionized water and 2 mL ISA and promptly begin analysis. To compensate for sample dilution, the "sample volume" entered into the method is equal to 0.1 mL.
 <b>Statistics</b>	
<b># of Trials</b>	5
<b>Mean</b>	2812ppm(v)
<b>%CV</b>	1.11
<b>Analysis Time</b>	3.3minute(s)
<b>Comments</b>	Rinse the electrodes, stirrer, and dispenser probe between measurements with deionized water.

## Method Parameters

<b>Sample Volume/Weight</b>	0.100 mL	<b>Timed or Stability Readings</b>	3.0 mV/min stability
<b>Constant Increment</b>	18.0 mV	<b>Number of Endpoints</b>	1
<b>Max Titrant Volume</b>	10.00 mL	<b>Desired Units</b>	ppm - v
<b>Molecular weight</b>	14.00 g	<b>Predose</b>	none
<b>Prestir</b>	10.0 second(s)	<b>Additional Parameters</b>	Total Solution Volume = 63.00 mL, Precision = 2.0%
<b>Reaction Ratio</b>	1.00		