



Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 183A

Overview

Ammonia in a nickel plating bath is determined by a Thermo technique called KAP Analysis. Aliquots of an ammonia standard are added automatically to a diluted sample, containing an Orion Ammonia Electrode. The Orion 960 Autochemistry System calculates sample concentration and electrode slope, and verifies the results through a spike recovery test.

Industry	Metal Finishing
Species Measured	Ammonia
Sample	Nickel Plating Bath
Sample Size	40mL
Typical Concentration	143 ppm(v)
Technique	# 2 Multiple Known Addition
Electrode	Ammonia 9512BN
Solutions	0.1M ammonia standard 961006; ammonia pH adjusting ISA 951211
Sample Prep	Accurately pipet 40 mL of distilled or deionized water and 5 mL of sample into a beaker. Add 5 mL of ammonia ionic strength adjuster immediately before beginning the analysis. Total solution volume is 50 mL.

Statistics

# of Trials	5	Mean	143ppm(v)	%CV	0.59
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Analysis Time 2.7minute(s)

Comments Rinse the electrodes, stirrer, and dispenser probe between measurements with deionized water. It is very important to keep all bubbles off the ammonia electrode after immersing the electrode in the sample, they can be dispersed by gently tapping the electrode.

Method Parameters

Sample Volume/Weight	5.00 mL	Timed or Stability Readings	3.0 mV/min stability
Constant Increment	15.0 mV	Number of Endpoints	1
Max Titrant Volume	10.00 mL	Desired Units	ppm - v
Molecular weight	18.04 g	Predose	none
Prestir	3.0 second(s)	Additional Parameters	Total Solution Volume = 50.00 mL, Precision = 3.0%
Reaction Ratio	1.00		