



# Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 189C

## Overview

% nitric acid and % permanganate were determined by using the first derivative titration technique with hydroxide as the titrant and ferrous ammonium sulfate respectively. The Orion 960 Titrator PLUS determines the endpoint and calculates the concentration of each species in the sample.

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<b>Industry</b>	Metal Finishing
<b>Species Measured</b>	Nitric Acid
<b>Sample</b>	Acid Bath
<b>Sample Size</b>	0.5mL
<b>Typical Concentration</b>	32% w/w
<b>Technique</b>	# 6 First Derivative
<b>Electrode</b>	Ross Combination Sure-Flow pH 8172BN
<b>Solutions</b>	0.5M sodium hydroxide
<b>Sample Prep</b>	Accurately weigh 0.5 mL of sample into a beaker, add 50 mL of deionized water and titrate with 0.5 M sodium hydroxide.

## Statistics

<b># of Trials</b>	5	<b>Mean</b>	32.293%w/w	<b>%CV</b>	0.45
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**Analysis Time** 3.2minute(s)

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

## Method Parameters

<b>Sample Volume/Weight</b>	0.6g	<b>Timed or Stability Readings</b>	8.0 sec timed
<b>Constant Increment</b>	10.0 mV	<b>Number of Endpoints</b>	1
<b>Max Titrant Volume</b>	10.00 mL	<b>Desired Units</b>	% w/w
<b>Molecular weight</b>	63.00 g	<b>Predose</b>	5.00 mL
<b>Prestir</b>	3.0 sec	<b>Additional Parameters</b>	
<b>Reaction Ratio</b>	1.00		