



# Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 17A

## Overview

Total acidity of orange juice is determined using the first derivative titration technique. NaOH titrant is added to a volume of deionized water containing an accurately weighed 1 gram juice sample, and an Orion ROSS Combination pH electrode. The Orion 960 Titrator PLUS determines the endpoint and calculates the total acidity of each sample.

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<b>Industry</b>	Food and Beverage
<b>Species Measured</b>	Acidity
<b>Sample</b>	Orange Juice
<b>Sample Size</b>	1.0g
<b>Typical Concentration</b>	11 mg/100g
<b>Technique</b>	# 6 First Derivative
<b>Electrode</b>	Ross Combination pH 8102BN
<b>Solutions</b>	0.05M Sodium hydroxide; Electrode Fill 810007; Deionized water
<b>Sample Prep</b>	Accurately weigh about 1.0 g of juice into sample beaker. Add 50 mL of distilled water. Sample could be done using positive displacement pipet, which can handle juice cleanly and give reproducible weights.

## Statistics

<b># of Trials</b>	10	<b>Mean</b>	11.262mg/100g	<b>%CV</b>	0.07
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<b>Analysis Time</b>	1.1minute(s)
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<b>Comments</b>	Rinse the electrodes, stirrer, and dispenser probe between measurements with deionized water.
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## Method Parameters

<b>Sample Volume/Weight</b>	1.00 g	<b>Timed or Stability Readings</b>	5.0 sec timed
<b>Constant Increment</b>	10.0 mV	<b>Number of Endpoints</b>	1
<b>Max Titrant Volume</b>	4.1 mL	<b>Desired Units</b>	mg/100g
<b>Molecular weight</b>	1.00 g	<b>Predose</b>	2.00 mL
<b>Prestir</b>	5.0 sec	<b>Additional Parameters</b>	
<b>Reaction Ratio</b>	1.00		