



# Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 8

## Overview

Total acidity of ketchup is determined using the first derivative titration technique. NaOH titrant is added to a volume of deionized water containing an accurately weighed 1 g ketchup sample, and an Orion Ross Combination pH electrode. The Orion 960 Autotitrator 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>	Ketchup
<b>Sample Size</b>	1.0g
<b>Typical Concentration</b>	1400 mg/100g
<b>Technique</b>	# 6 First Derivative
<b>Electrode</b>	Ross Combination pH 8102BN
<b>Solutions</b>	Electrode Fill 810007; 5.0M Sodium Hydroxide; Deionized water
<b>Sample Prep</b>	Accurately weigh about 1.0 g of ketchup into a sample beaker. Add 50 mL of deionized water. Sample could be done using positive displacement pipet, which can handle ketchup cleanly and give reproducible weights.

## Statistics

<b># of Trials</b>	10	<b>Mean</b>	1389mg/100g	<b>%CV</b>	0.26
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**Analysis Time** 2.5minute(s)

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

## Method Parameters

<b>Sample Volume/Weight</b>	1.09 g	<b>Timed or Stability Readings</b>	10.0 second(s) timed
<b>Constant Increment</b>	15.0 mV	<b>Number of Endpoints</b>	1
<b>Max Titrant Volume</b>	7.30 mL	<b>Desired Units</b>	mg/100g
<b>Molecular weight</b>	60.0 g	<b>Predose</b>	4.0 mL
<b>Prestir</b>	10.0 second(s)	<b>Additional Parameters</b>	
<b>Reaction Ratio</b>	1.00		