



Thermo

ELECTRON CORPORATION

Potentiometric Titration Application Notes

Applications Log # 153

Overview

Acidity of cooking lard was determined by using the first derivative titration technique with an Orion pH electrode. Using potassium hydroxide as the titrant. The Orion 960 Autochemistry System determines the endpoint and calculates the acidity of the cooking lard sample.

Industry	Food and Beverage
Species Measured	Acidity
Sample	Cooking Oil
Sample Size	1.0g
Typical Concentration	436mg/100g
Technique	# 6 First Derivative
Electrode	Ross Sure-Flow pH
Solutions	Toluene; methanol; 0.1M potassium hydroxide made w/ methanol instead of deionized water
Sample Prep	Accurately weigh about 1 g of cooking lard into an analysis beaker plus 25 mL of toluene and 25 mL methanol. Dissolve sample with 3 min. prestir, titrate with 0.1 M potassium hydroxide. For better accuracy make a batch solution of sample and take aliquots. This is done by accurately weighing 10 g of sample into a 500 mL beaker, add 250 mL of toluene and 200 mL methanol to dissolve sample. Take the above solution and transfer it into a 500 mL volumetric flask. Take 50 mL aliquots for each analysis.

Statistics

of Trials 5 **Mean** 435.97mg/100g **%CV** 0.45

Analysis Time 5.7minute(s)

Comments Rinse the electrodes, stirrer, and dispenser probe between measurements with deionized water. Use 1/10th of the weight of lard weighed into 500 mL beaker for weight entered in 960. The unit of measurement is mg of acid/100 g of sample expressed as KOH.

Method Parameters

Sample Volume/Weight	1.28 g	Timed or Stability Readings	6.0 second(s) timed
Constant Increment	10.0 mV	Number of Endpoints	1
Max Titrant Volume	5.00 mL	Desired Units	mg/100g
Molecular weight	56.11 g	Predose	none
Prestir	0	Additional Parameters	
Reaction Ratio	1.00		