Thermo SCIENTIFIC

Potentiometric Titration Application Notes Applications Log # **669B**

Overview The calcium content in tomatoes is determined by a multiple knowen addition technique using 0.1 M calcium standard on the Orion 960 Autochemistry System. A half-cell calcium electrode is used along with a single junction reference electrode, and the 960 calculates theresult and reports it as %w/w or ppm (w/w).

Market	Food and Beverage	***Species Measured***	Calcium
Sample	Diced Tomatoes	***Sample Size***	Approximately 10 g
		Typical Concentration	~0.05 % Ca2+ (w/w)
Technique #	Single Known Addition	***Electrode***	Calcium electrode 9320BN, SJ Ref 900100

Solutions Calcium Known Standard (Cat. 922006); Calcium Ionic Strength Adjustor (Cat. 932001); Reference Electrode Fill Solution (Cat. 900011).
Thermo Orion 960 (Cat. 096000); Calcium Plastic Membrane Half-Cell (Cat. 932000); Single Junction Referenc

Sample Prep In a blender liquefy tomato sample. Weigh and record approximately 10 g of liquefied tomatoes, and the quantitatively transfer this to a 500ml volumetric flask, filling to the line with deionized water. Place solution on magnetic stirrer, and allow about

15 minutes to mix thoroughly. Pipette 50 ml of the mixed tomato solution, and an additional 1 mL of calcium ISA into a plastic beaker. Place electrode in solution and pre-stir for 1 minute.

Statistics

# of Trials 7 ***Mean***)5315 % Ca2+ (w/ ***%CV*** 2.43 ***Analysis Time*** 1.9 min

Comments Rinse the electrodes, stirrer, and dispenser probe thoroughly between measurements with deionized water.
Tomato solution is kept on the magnetic stirrer to make sure all samples are homogeneouss. And

samples.Samle weight entered is one tenth of the weighed sample.

Method Parameters

Sample Volume/Weight	1.00030 g	***Timed or Stability Readings***	3.0 mv/min
Constant Increment	9.0 mv	***Number of Endpoints***	
Max Titrant Volume	10.000 ml	***Desired Units***	%w/w
Molecular weight	40.08	***Predose***	0
Prestir	30.0 sec	***Additional Parameters***	TOTAL SOLN VOL 51.00 Ml; standard 0.1000 m of Ca2+; FRECISION 2.0 %;
Reaction Ratio	1.0		