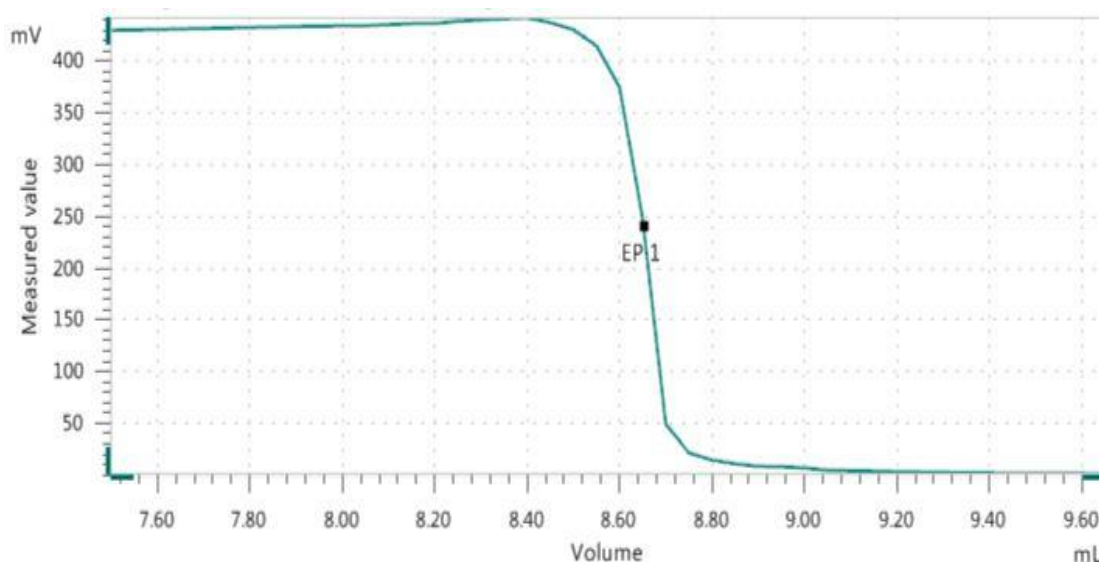


Redox titration of vitamin C in orange juice using OMNIS system



The vitamin C is an important antioxidant. An important source for vitamin C is orange juice. The determination of the vitamin C content in orange juice is therefore of importance.

With the OMNIS system a fast and accurate determination of vitamin C in orange juice by a potentiometric titration with the double Pt-sheet electrode is realized. The vitamin C content is determined using iodine as titrant.

Method description

Sample

Orange juice

Sample preparation

No sample preparation is required.

Analysis

Sample

50 mL orange juice is pipetted into the titration vessel and placed on the rack. Just before the titration 2 mL glyoxal solution is automatically added to the sample. After a reaction time of 5 minutes, 5 mL sulfuric acid is automatically added and the solution is titrated with $c(I_2) = 0.01 \text{ mol/L}$ until after the equivalence point using the double Pt-sheet electrode.

Configuration

OMNIS Sample Robot S with one Pick&Place module and pump module (2-channel)	2.1010.1010
OMNIS Titrator	2.1001.0010
OMNIS Dosing Module, 2x	2.1003.0010
Cable MDL St/Bu 1 m, 3x	6.02102.020
OMNIS 5 mL cylinder unit, 2x (sulfuric acid, glyoxal solution)	6.03001.150
OMNIS 20 mL cylinder unit (titrant)	6.03001.220
OMNIS Rod stirrer "Sample Robot"	2.1006.0010
Analog measuring module	6.02101.010
Electrode cable plug-in head G (pol.) / plug P, 1.5 m	6.02104.050
OMNIS Stand-alone license (including one instrument license), OMNIS 1.0	6.06003.010
Double Pt-sheet electrode	6.0309.100
OMNIS instrument license, 1x	6.06002.010

Solutions

Titant	$c(I_2) = 0.01 \text{ mol/L}$, if possible this solution should be bought from a supplier.
Glyoxal solution	$w(C_2H_2O_2) = 40\%$ with $pH = 7.0$, if possible this solution should be bought from a supplier.
Sulfuric acid	$c(H_2SO_4) = 1.0 \text{ mol/L}$, if possible this solution should be bought from a supplier.

Parameters

Mode	MET Ipol
I(pol)	1.0 μA
Pause	30 s
Start volume	7.5 mL
Stirring rate	8
Volume increment	50 μL
Signal drift	50 mV/min
Max. waiting time	32 s
Min. waiting time	0 s
Dosing rate	Maximum
Stop volume	20 mL
Stop EP	1
Volume after EP	1.0 mL
EP criterion	30 mV
EP recognition	All

Results

Content β_{AA} / (mg/L) (n = 5)	s(rel) / %
303.8	0.44