Quantitative analysis of ascorbic acid with Iodine titrant

Application

Use

This method is used to determine the content of ascorbic acid (Vitamin C) with the Iodine titrant in juices like orange or apple juice. The sulfite (SO_2) in the juice is masked before with glyoxal solution.

Appliances

- Titrator: TL 6000/7000 (TL 6000/7000 M1/10) consists of
- Basic device
- Magnetic stirrer TM 235
- 10 mL Exchange unit WA 10, with brown glass bottle for titrant complete

Electrodes

- Electrode: Pt 1200 or with cable L 1 NN

Reagents

- Titration agent: Iodine solution 0.01 mol/L
- Other reagents: H_2SO_4 25 % and Glyoxal solution 40 %

Description

Preparation of the 0.01 mol/L Iodine solution

The iodine titrant is made out of 0.05 mol/l titrant solution which can made from ampuoles.

Preparation of the Glyoxal solution

A solution of 40 % Glyoxal is adjusted with NaOH to a pH value of 7.0

Preparation of the H_2SO_4 25 %

To 75 ml distilled water are carefully added 14 ml H_2SO_4 96 % (conc.) This mixture is filled up to 100 ml with distilled water.

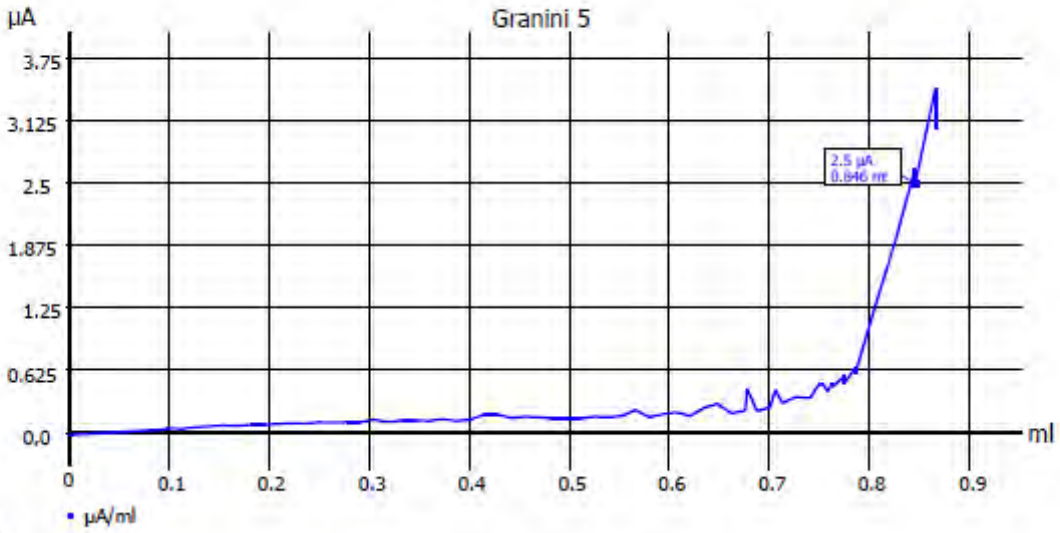
Titration

In a 100 or 150 mL beaker are added 50 ml sample and 2 ml of the Glyoxal solution. After 5 minutes 5 ml of the H_2SO_4 25 % are added. The mixture is directly titrated with the Iodine solution to an µA endpoint.

Methods

GLP documentation

Titration graph



Method data

Method name:	Vitamin C with Iodine	Titration duration:	1 m 12 s
End date:	17.05.13	End time:	13:32:40

Titration data

Sample ID:	Granini 5	Pattern:	50.000 ml
Start µA:	-0.024 µA	End µA:	3.046 µA
EP:	0.846 ml/ 2.5 µA	ASC:	101.31 mg/l

Calculation formula

ASC:	(EP-B)*T*M*F1/(V*F2)	Mol (M):	176.10000
Blank value (B):	0.0000 ml	Titre (T):	0.03400000 (m)
Factor 1 (F1):	1000.0000	Pattern (V):	50.000 ml (m)
Factor 2 (F2):	1.0000	Statistics:	Off

sample titration (page 2):

Method data overall view

Method name:	Vitamin C with Iodine	Created at:	05/17/13 12:43:14
Method type:	Automatic titration	Last modification:	05/17/13 13:29:30
Measured value:	µA		
Titration mode:	d-stop	Documentation:	GLP
Linear steps:	0.020 ml		
Measuring speed / drift:	1 s		
Initial waiting time:	0 s		
Titration direction:	Increase		
Pretitration:	0.100 ml	Delay time:	04 s
Endpoint:	2.5 µA	delta endpoint:	2.0 µA
		Endpoint delay:	5 s
Polarization voltage:	100 mV		

Dosing parameter

Dosing speed:	20.00 %	Filling speed:	30 s
Maximum dosing volume:	4.00 ml		

Unit values

Unit size:	05ml
Unit ID:	1296649042
Reagent:	Iod
Batch ID:	no Charge
Concentration [mol/l]:	0.03400
Determined at:	10/17/12 22:53:39
Expire date:	12/05/11
Opened/compounded:	--
Test according ISO 8655:	--
Last modification:	10/17/12 15:53:47

Hints

If you have any questions concerning the application, you are welcome to contact us.

Literature

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