

**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 be made from ampoules.

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

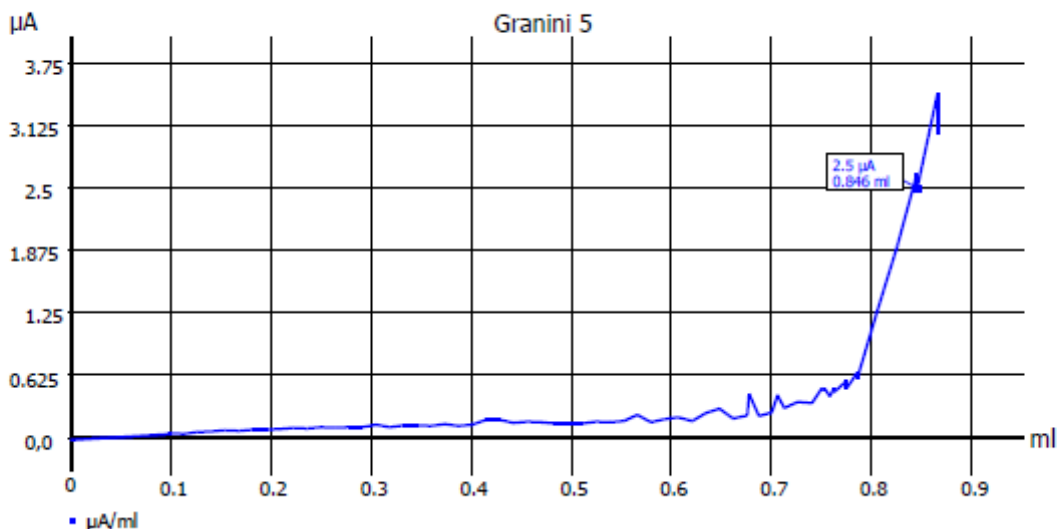
In a 100 or 150 mL beaker are added 50 ml sample and 2 ml of the Glyoxal solution. After 5 minutes 5 ml of the H_2SO_4 25 % are added. The mixture is directly titrated with the Iodine solution to an μA endpoint.

Application

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 |

Application

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 | Documentation: | GLP |
| Titration mode: | d-stop | | |
| 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 |

Application

Hints

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

Literature

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