



Detection of calcium in calcium acetate

Introduction:

Calcium acetate can be used as a food stabilizer, chelating agent, mold inhibitor, buffering agent, aroma enhancer, and corrosion inhibitor. In addition, calcium acetate is also a good food calcium fortifier with better absorption effect than inorganic calcium. Can be used in infant and toddler food. This article mainly introduces the determination of calcium content in calcium acetate tablets.

Detection items (Table 1):

Anion	Ca ²⁺
-------	------------------

Keywords: Calcium acetate, Ion chromatography

Instruments and equipment

- **Ion chromatograph:** CIC-D160⁺
- **Ultra pure water machine:**ECO-S15

Qingdao Shenghan Chromatograph Technology Co., Ltd



Requirements

Reagents

Unless otherwise specified, all reagents used are superior grade. Commercially available certified standard solutions for Ca²⁺ (1000 mg/L).

Deionized Water

When preparing standard samples manually or diluting real samples, please use ASTM filtration and deionization requirements that meet the specifications listed in the table 2.

Table 2: Deionized water specification.

Specification	
Ions Resistivity	≥18.25MΩ·cm
Organics-TOC	<10ppb
Iron/Transition Metals	<1ppb
Pyrogens	<0.03Eu/mL
Particulates (>0.2μm)	<1unit/mL
Colloids-Silica	<10ppb
Bacteria	<1cfu/mL

Chromatography conditions

Table 3: Analysis conditions

Instrument	CIC-D160 ⁺
Eluent	34 mM MSA
Flow rate	1.5 mL/min
Injection volume	25 μL
Analytical Column	IonPac CG16+IonPac CS16
Column oven temperature	50°C
Conductivity cell temperature	35°C
Suppressor current	150 mA

Sample preparation

Step 1: Grind samples into powder and pass them through a 100 mesh sieve.

Step 2: Weigh approximately 0.25 g (record accurate mass to 0.0001 g) and prepare the sample. Add 10 mL of 6M hydrochloric acid, heat to boiling, stir magnetically for 10 minutes, and cool to room temperature. Transfer the entire solution to a 100 mL volumetric flask and dilute to the mark with pure water.

Step 3: Transfer 0.4 mL of the reserve solution into a 10 mL volumetric flask and dilute to the mark with pure water. Pass through 0.22 μm filter membrane, Sample preparation completed.

More information, Please visit our website:
<http://www.sheng-han.net/>
 Serial number:062

Standard chromatogram

Standard chromatogram, As shown in below:

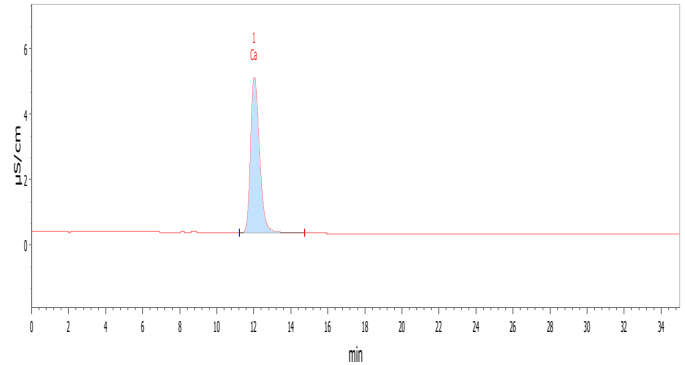


Figure 1. Chromatogram of standard sample.

Sample chromatogram

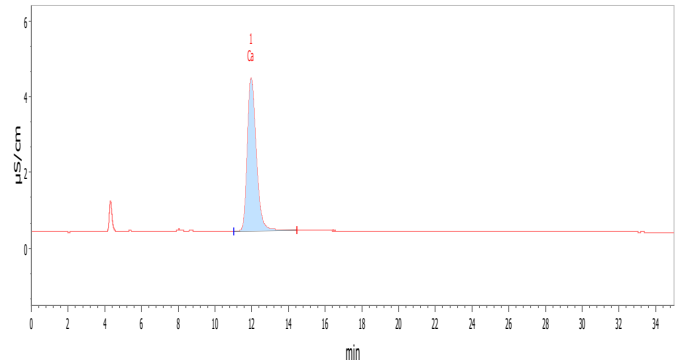


Figure 2. Chromatogram of sample

Results and calculations

Table 4: Sample test result

Sample	Test sample Ca mg/L	Calcium acetate Ca g/100g
1	21.540	84.913
2	21.661	85.356

Remarks: ① The measured value has been deducted from the blank value; ② There may be differences in testing results between different methods and laboratories;

Feasibility analysis and conclusion

The above experiments prove that the detection method has good resolution and is suitable for the determination of the content of the components to be measured in the sample.