

First edition
2008-01-15

Corrected version
2008-04-15

**Fruit and vegetable products —
Determination of benzoic acid and sorbic
acid concentrations — High performance
liquid chromatography method**

*Fruits, légumes et produits dérivés — Détermination des teneurs en
acides benzoïque et sorbique — Méthode par chromatographie liquide
à haute performance*



Reference number
ISO 22855:2008(E)

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Published in Switzerland

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Foreword

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ISO 22855 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 3, *Fruit and vegetable products*.

This corrected version of ISO 22855:2008 incorporates the following corrections:

- In 3.5 and 3.6, the concentrations of the stock solutions have been changed from 100 mg/ml to 1 g/l, and the texts have been reworded.
- The hyphen between high and performance in “high performance liquid chromatography” has been removed.

Fruit and vegetable products — Determination of benzoic acid and sorbic acid concentrations — High performance liquid chromatography method

1 Scope

This International Standard specifies a method using high performance liquid chromatography for the determination of the concentration of benzoic and sorbic acids in fruit and vegetable juices.

NOTE This method is based on IFU method 63 [2].

2 Principle

Extraction of benzoic acid and/or sorbic acid from a test portion using a mixture of ammonium acetate buffer solution and methanol, under acidic conditions.

The concentration of benzoic and/or sorbic acid is determined by means of high performance liquid chromatography (HPLC) using a reverse phase column and ultraviolet (UV) detector.

3 Reagents and materials

Use only reagents of recognized analytical grade, unless otherwise specified, and water of HPLC grade.

3.1 Acetic acid (CH_3COOH), glacial.

3.2 Methanol (CH_3OH), for HPLC.

3.3 Ammonium acetate ($\text{CH}_3\text{COONH}_4$), 0,01 mol/l solution.

Dissolve 0,771 g of ammonium acetate in 1 l of water.

3.4 Ammonium acetate/acetic acid ($\text{CH}_3\text{COONH}_4/\text{CH}_3\text{COOH}$), buffer solution.

Mix 1 000 volume parts of ammonium acetate solution (3.3) with 1,2 volume parts of acetic acid (3.1).

3.5 Benzoic acid ($\text{C}_6\text{H}_5\text{COOH}$), stock solution.

Dissolve 100 mg of benzoic acid in 40 ml of methanol (3.2) and make up to the mark with water in a 100 ml volumetric flask, to obtain the stock solution, $\rho(\text{C}_6\text{H}_5\text{COOH}) = 1 \text{ g/l}$.

3.6 Sorbic acid [$\text{CH}_3(\text{CH}:\text{CH})_2\text{COOH}$], stock solution.

Dissolve 100 mg of sorbic acid in 40 ml of methanol (3.2) and make up to the mark with water in a 100 ml volumetric flask, to obtain the stock solution, $\rho[\text{CH}_3(\text{CH}:\text{CH})_2\text{COOH}] = 1 \text{ g/l}$.

3.7 Potassium hexacyanoferrate(II), trihydrate, $\text{K}_4[\text{Fe}(\text{CN})_6]\cdot 3\text{H}_2\text{O}$.