



SLOVENSKI STANDARD
SIST EN 1142:1996
01-avgust-1996

Sadni in zelenjavni sokovi - Ugotavljanje vsebnosti sulfata

Fruit and vegetable juices - Determination of the sulfate content

Frucht- und Gemüsesäfte - Bestimmung des Sulfatgehaltes

Jus de fruits et de légumes - Dosage des sulfates

Ta slovenski standard je istoveten z: EN 1142:1994

[SIST EN 1142:1996](https://standards.iteh.ai/catalog/standards/sist/04ed3b29-fbda-493a-ad70-85a17a04fcb0/sist-en-1142-1996)

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-fbda-493a-ad70-85a17a04fcb0/sist-en-1142-1996>

ICS:

67.160.20 Brezalkoholne pijače Non-alcoholic beverages

SIST EN 1142:1996

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1142:1996

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-f6da-493a-ad70-85a17a04fcb0/sist-en-1142-1996>

EUROPEAN STANDARD

EN 1142

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1994

UDC 663.81/.82:620.1:546.226

Descriptors: food products, beverages, fruit and vegetable juices, chemical analysis, determination of content, sulphates, incineration analysis

English version

Fruit and vegetable juices - Determination of the sulfate content

Jus de fruits et de légumes - Dosage des sulfates

Frucht- und Gemüsesäfte - Bestimmung des Sulfatgehaltes

STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1142:1996

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-f6da-493a-ad70-85a17a04fcb0/sist-en-1142-1996>

This European Standard was approved by CEN on 1994-09-29. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 174 "Fruit and vegetable juices - Methods of analysis", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a National Standard, either by publication of an identical text or by endorsement, at the latest by April 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

Annexes designated "informative" are given only for information. In this standard annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1142:1996

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-f6da-493a-ad70-85a17a04fcb0/sist-en-1142-1996>

1 Scope

This European standard specifies a method for the determination of the sulfate content of fruit and vegetable juices and related products.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ISO 5725:1986 Precision of test methods - Determination of repeatability and reproducibility for a standard test method by inter-laboratory tests

ISO 3696:1987 Water for analytical laboratory use - Specification and test methods

3 Symbols

For the purposes of this standard the following symbols apply :

- c Substance concentration ;
- ρ Mass concentration ;
- g Acceleration due to gravity at the surface of the earth.

4 Principle

The sulfate ions present in the test sample are precipitated by means of barium chloride. Co-precipitated barium phosphate is eliminated by treatment of the precipitate with hydrochloric acid. The precipitate is weighed after ashing.

5 Reagents

Use only reagents of recognized analytical grade and only water in accordance with at least grade 3 of ISO 3696.

5.1 Barium chloride solution, r ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$) = 200 g/l

5.2 Hydrochloric acid, c (HCl) = 2 mol/l

6 Apparatus

Usual laboratory apparatus and, in particular, the following :

- 6.1 **Centrifuge**, capable of producing a centrifugal force of 3000 x g at the base of the centrifuge tubes (6.2) (the value of g is fixed for the purpose of this european standard at 9,81).
- 6.2 **Centrifuge tubes**, 50 ml.
- 6.3 **Platinum dish**, minimum volume 30 ml.
- 6.4 **Analytical balance**, accurate to 0,1 mg.
- 6.5 **Water bath**
- 6.6 **Dessiccator**, with a drying agent.

7 Procedure

7.1 Preparation of the test sample

Normally products shall not be pretreated and their analysis by this method shall be on a volumetric basis. The analysis of concentrated products may also be carried out on a volumetric basis, after dilution to a known relative density. In this case, the density shall be indicated. Based on a weighed sample and taking the dilution factor for analysis into account, the results may also be expressed per kilogram of product. In products with high viscosity and/or very high content of cells (for example pulp), determination on the basis of a weighed test sample is the usual procedure.

Clear juices are used without any particular preparation of the sample. Cloudy juices are centrifuged at 3000 x g and the determination is conducted on the clear supernatant liquid.

7.2 Determination

Pipette 40,0 ml of clear or clarified sample (7.1) into a centrifuge tube, add 2,0 ml of hydrochloric acid (5.1) and 2 ml of barium chloride solution (5.1) and mix thoroughly with a glass rod. Rinse the glass rod with water. Leave the centrifuge tube to stand for 5 min and then centrifuge for 5 min at 3000 g. Carefully decant the clear supernatant solution into a beaker.

The barium sulfate precipitate is then washed as follows: The precipitate is treated first with 10 ml of hydrochloric acid (5.2), any co-precipitated barium phosphate being dissolved by stirring several times. Centrifuge again for 5 min at 3000 x g and carefully decant the supernatant clear liquid. The precipitate is washed twice in the same manner with 15 ml water. Transfer the washed residue quantitatively with water to a previously weighed platinum crucible (mass = m_1) and evaporate to dryness on the water bath. Next heat the platinum crucible several times over an open flame, until the residue is white. Weigh the crucible (mass = m_2) after cooling to room temperature in a desiccator (6.6).

8 Calculation

Calculate the sulfate content, ρ , expressed in milligrams per litre, using the equation :

$$\rho = (m_2 - m_1) \times 10,29$$

where :

$(m_2 - m_1)$ is the mass of BaSO_4 , in milligrams, precipitated from 40 ml of sample.

The factor 10,29 results as follows :

$$10,29 = 25 \times 0,4116$$

(Factor 25 for calculation in 1 litre of sample; factor 0,4116 for conversion of BaSO_4 to sulfate content).

Take into account the dilution factor and the relation of the value to mass or volume. If a concentrated product has been diluted to single strength, report the relative density of the single strength sample.

Report the sulfate content in milligrams per litre of test sample to the nearest mg.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

9 Precision

Details of the interlaboratory test on the precision of the method are summarized in annex B. The values derived from the interlaboratory test may not be applicable to analyte concentration ranges and matrices other than given in annex B.

9.1 Repeatability

The absolute difference between two single test results found on identical test material by one operator using the same apparatus within the shortest feasible time interval will exceed the repeatability value r in not more than 5 % of the cases.

The value is :

$$r = 7,6 \text{ mg/l}$$

9.2 Reproducibility

The absolute difference between two single test results on identical test material reported by two laboratories will exceed the reproducibility value R in not more than 5 % of the cases.

The value is :

$$R = 26 \text{ mg/l}$$

10 Test report

The test report shall contain the following data :

- all information necessary for the identification of the sample (kind of sample, origin of sample, designation) ;
- a reference to this European Standard ;
- the date and type of sampling procedure (if possible) ;
- the date of receipt ;
- the date of test ;
- the test results and units in which they have been expressed ;
- whether the repeatability of the method has been verified ;
- any particular points observed in the course of the test ;
- any operations not specified in the method or regarded as optional, which might have affected the results.

(standards.iteh.ai)

SIST EN 1142:1996

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-fbda-493a-ad70-85a17a04fcb0/sist-en-1142-1996>

Annex A (informative)**Bibliography**

[1] Determination of sulfate content: No 36, 1987. - In: Analyses [Collection] / International Federation of Fruit Juice Producers. - Loose-leaf edition, as of 1989. - Zug: Swiss Fruit Union.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 1142:1996

<https://standards.iteh.ai/catalog/standards/sist/04ed3b29-f6da-493a-ad70-85a17a04fcb0/sist-en-1142-1996>