SLOVENSKI STANDARD
SIST EN 12134:1998

01-junij-1998

Sadni in zelenjavni sokovi - Določevanje pulpe s centrifugiranjem

Fruit and vegetable juices - Determination of centrifugable pulp content

Frucht- und Gemüsesäfte - Bestimmung des Gehaltes an zentrifugierbarer Pulpe

Jus de fruits et de légumes - Détermination de la teneur en pulpe centrifugeable

Ta slovenski standard je istoveten z: **EN 12134:1997**

ICS:

67.160.20 Brezalkoholne pijače Non-alcoholic beverages

SIST EN 12134:1998 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12134

September 1997

ICS 67.160.20

Descriptors: fruit and vegetable juices, tests, determination of content, pulps, centrifugal analysis, procedure

English version

Fruit and vegetable juices - Determination of centrifugable pulp content

Jus de fruits et de légumes - Détermination de la teneur en pulpe centrifugeable

Frucht- und Gemüsesäfte - Bestimmung des Gehaltes an zentrifugierbarer Pulpe

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

Ref. No. EN 12134:1997 E

Contents

Foreword

This European Standard has been prepared by 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of an identical text or by endorsement, at the latest by March 1998, and conflicting national standards shall be withdrawn at the latest by March 1998.

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

1 Scope

This European Standard specifies a centrifugation method for the determination of the pulp content of fruit and vegetable juices and related products.

2 Normative references

This European Standard incorporates by dated or undated references, 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

3 Symbol

For the purposes of this European Standard, the following symbol applies :

g acceleration due to gravity at the surface of the earth (9,81 m/s^2)

4 Principle

The sample is centrifuged and the content of pulp is determined as a percentage by volume of the fruit juice.

5 Apparatus

Usual laboratory apparatus and, in particular, the following :

5.1 Centrifuge, capable of producing a centrifugal acceleration of 370 g at the base of the centrifuge tube (5.3).

NOTE :The rotational frequency required to give correct centrifugal acceleration can be calculated from the following equation :

$$a = 11{,}18 \cdot r \cdot (n / 1\,000)^2 \qquad (1)$$

where :

a is the centrifugal acceleration ;

r is the radius of the centrifuge in centimetres, measured from the mid point (the centrifuge axis) to the bottom of the centrifuge tube when swung out ;

n is the rotational frequency per minute.

example :

r = 19,5 and a = 370

then :

$$370 = 11{,}18 \cdot 19{,}5 \cdot \left(\frac{n}{1\,000}\right)^2$$

$$n = 1\,000 \cdot \sqrt{\frac{370}{11{,}18 \cdot 19{,}5}} = 1\,302 \qquad (2)$$

5.2 Magnetic stirrer

5.3 Petroleum tubes with graduations for 50 ml samples (e.g. Heraeus type 3113® [1]) **or centrifuge tubes** (10 ml) with conical base and 0,1 ml graduations.

6 Procedure

6.1 Preparation of the test sample

Normally products shall not be pre-treated, however dilution may be necessary, 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 relative density shall be indicated.

Mix cloudy samples well before dilution.

6.2 Test procedure

Place the fruit juice (10 ml or 50 ml) or the correspondingly diluted concentrate in the centrifuge tube (5.3) and centrifuge it at a centrifugal acceleration of 370 *g* for 10 min.

7 Calculation

The centrifuged pulp may lie unevenly in the tube. Therefore measure the highest and lowest point of the pulp in each tube, record the mean and calculate the pulp volume in percent.

If a concentrated product has been diluted to single strength, report the relative density of the single strength sample.

Report the pulp volume in percentage (*V/V*) to one decimal place.

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[1] Heraeus type 3113® is an example of a suitable product available commercially. This information is given for the convenience of users of this standard and does not constitute an endorsement by CEN of this product.

8 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.

8.1 Repeatability

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

For orange juice the value is : r = 0,9 % (V/V).

8.2 Reproducibility

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

For orange juice the value is : R = 2,1 % (V/V).

9 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 known) ;
- 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.

Annex A (informative)

Bibliography

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