



SLOVENSKI STANDARD SIST EN 920:2000

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Paper and board intended to come into contact with foodstuffs - Determination of dry matter content in an aqueous extract

Papier und Pappe vorgesehen für den Kontakt mit Lebensmittel - Wasserlösliche Bestandteile

Papiers et cartons destinés a entrer en contact avec les denrées alimentaires - Dosage de la matiere soluble dans l'eau

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Ta slovenski standard je istoveten z: EN 920:1998

ICS:

67.250	Materiali in predmeti v stiku z živili	Materials and articles in contact with foodstuffs
85.060	Papir, karton in lepenka	Paper and board

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EUROPEAN STANDARD

EN 920

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1998

ICS 67.250; 85.060

Supersedes EN 920:1994

Descriptors: paper, paperboards, food products, food-container contact, tests, soluble matter, water, extraction, evaporation

English version

Paper and board intended to come into contact with foodstuffs - Determination of dry matter content in an aqueous extract

Papiers et cartons destinés à entrer en contact avec les denrées alimentaires - Détermination de la teneur en matières sèches dans un extrait aqueux

Papier und Pappe vorgesehen für den Kontakt mit Lebensmitteln - Bestimmung des Trockengehaltes in einem wässrigen Extrakt

This European Standard was approved by CEN on 17 May 1998.

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.

This European Standard exists 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST... EN 920

PREVZET PO METODI RAZGLASITVE

-04- 2000



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

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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 172 "Pulp, paper and board", the secretariat of which is held by DIN.

This European Standard supersedes EN 920:1994.

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 December 1998, and conflicting national standards shall be withdrawn at the latest by December 1998.

With regard to EN 920 : 1994 the following changes have been made:

- a) change of title;
- b) correction of formula 2;
- c) editorial updating.

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.

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1 Scope

This European Standard specifies a test method for the determination of the quantity of water-soluble dry matter extracts from paper and board by hot and/or cold water. The test method is applicable only to paper and board intended for boiling and/or filtering of foodstuffs.

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.

EN 645

Paper and board intended to come into contact with foodstuffs – Preparation of a cold water extract

EN 647

Paper and board intended to come into contact with foodstuffs – Preparation of a hot water extract

EN 20287

Paper and board – Determination of moisture content – Oven-drying method (ISO 287 : 1985)

3 Definitions

For the purposes of this Standard the following definitions apply:

3.1 cold water extract: water solution obtained as a result of cold extraction (see EN 645).

3.2 hot water extract: water solution obtained as a result of hot extraction (see EN 647).

4 Principle

A sample is prepared and extracted as described in EN 645 or EN 647.

The cold or hot water extract obtained is filtered and then evaporated and dried at 105 °C. The residue is weighed. The result is expressed in mg/dm² or in mg/kg.

NOTE: Because of the evaporation of the extract and subsequent drying of the residue, volatile water-soluble matter can evaporate, too.

5 Apparatus

5.1 Ordinary laboratory apparatus

5.2 Oven capable of maintaining a temperature of $(105 \pm 2)^\circ\text{C}$

5.3 Hot-plate

5.4 Balance accurate to 0,1 mg

5.5 Evaporation dish with a mass not exceeding 100 g and a minimum capacity of 100 ml

6 Sampling and preparation

Sample preparation and extraction shall be carried out according to the methods for the preparation of hot or cold water extraction (see EN 645 and EN 647).

The extract shall be filtered before the determination of dry matter content.

7 Procedure

7.1 General

Carry out the determination by means of two extractions and two blanks, each made at the same time.

7.2 Preparation of the evaporation dish

Place an evaporation dish (5.5) in the oven (5.2) maintained at $(105 \pm 2)^\circ\text{C}$ for a period of (30 ± 5) min. Allow to cool the dish to ambient temperature in a desiccator, weigh and record the mass of the dish.

Replace the dish in the oven and repeat the cycle of heating, cooling and weighing until the mass differs by no more than 0,5 mg from the previous reading. Record this mass (m_d).

7.3 Determination of the residue

Pipette at least 100 ml (V_1) of the filtered extract into the tared evaporation dish and reduce the volume to a few millilitres by means of a hot plate. Take care to ensure that only mild boiling occurs to avoid loss, in particular by sputtering or overheating of the residue.

Place the dish in the oven at $(105 \pm 2)^\circ \text{C}$, for a period of (30 ± 5) min, to complete evaporation and dry the residue.

Remove the dish from the oven, place in a desiccator and allow to cool it to ambient temperature. Weigh and record the mass (m_r).

Determine the mass (m_s) of the residue by subtracting the mass of the dish (m_d) from the mass of the dish and residue (m_r).

7.4 Blank test

Carry out the procedure described under 7.2 and 7.3 with the same volume (V_1) of water as used in the extractions to establish the residue of this water (m_b).

The residue shall not exceed 5 mg/l.

8 Calculation

Calculate the water-soluble dry matter content in mg/dm³ or mg/kg as follows:

8.1

$$M_1 = (m_s - m_b) \cdot \frac{V_0}{V_1} \cdot \frac{b}{100} \cdot \frac{1}{m} \quad (1)$$

8.2

$$M_2 = (m_s - m_b) \cdot \frac{V_0}{V_1} \cdot \frac{b}{100} \cdot \frac{1}{m} \cdot f \quad (2)$$

where:

- M_1 water-soluble dry matter content in mg/dm³
- M_2 water-soluble dry matter content in mg/kg
- m_s mass of the residue from the test specimen in mg
- m_b mass of the residue of the blank in mg
- V_0 total volume of extract (250 ml) in ml
- V_1 volume taken for evaporation in ml
- b grammage in g/m²
- m mass of the sample as taken in g
- f moisture content of the sample in %, according to EN 20287

8.3 Calculate the mean of the two determinations to one decimal place.

9 Repeatability and reproducibility

On 4 samples of paper an interlaboratory test ($n = 12$) was performed on the water-soluble matter content of a hot water extract. The test method described above gave repeatability (r) and reproducibility (R) results as shown in table 1.

Table 1: Repeatability and reproducibility found in an interlaboratory test

	r	R
$\leq 0,1 \text{ mg/dm}^2$	$< 10 \%$	$< 20 \%$
$> 0,1 \text{ mg/dm}^2$	$< 15 \%$	

10 Report

The test shall refer to this European Standard and state:

- nature, origin and designation of the sample;
- date of sampling, if available;
- date of test;
- mean result;
- whether the test was performed using a hot or cold water extract;
- any deviation from this European Standard.

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