

SLOVENSKI STANDARD

SIST EN 646:2002

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SIST EN 646:1997

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Paper and board intended to come into contact with foodstuffs - Determination of colour fastness of dyed paper and board

Papier und Pappe vorgesehen für den Kontakt mit Lebensmitteln - Bestimmung der Farbechtheit von gefärbtem Papier und Pappe

Papiers et cartons destinés à entrer en contact avec les denrées alimentaires - Détermination de la solidité de la couleur des papiers et cartons colorés

Ta slovenski standard je istoveten z: EN 646:2000

ICS:

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

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 646

September 2000

ICS 67.250; 85.060

Supersedes EN 646:1993

English version

Paper and board intended to come into contact with foodstuffs -
Determination of colour fastness of dyed paper and board

Papiers et cartons destinés à entrer en contact avec les
denrées alimentaires - Détermination de la solidité de la
couleur des papiers et cartons colorés

Papier und Pappe vorgesehen für den Kontakt mit
Lebensmitteln - Bestimmung der Farbechtheit von
gefärbtem Papier und Pappe

This European Standard was approved by CEN on 9 September 2000.

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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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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

This European Standard supersedes EN 646:1993.

With regard to EN 646 : 1993 the following changes have been made:

- a) the possibility to use iso-octane instead of olive oil and the responsibility of a "yes/no" determination were added;
- b) editorial changes.

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 describes procedures for the testing of dyed paper and board intended to come into contact with foodstuffs. Two procedures are given. Procedure A for contact of long duration (e. g. food packaging) and procedure B for contact of short duration (e. g. napkins, kitchen papers, household papers).

Visual evaluation against a blank is used only in order to detect any bleeding (yes/no) while evaluation against a grey scale provides grading of the bleeding.

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 (including amendments).

EN ISO 186

Paper and board – Sampling to determine average quality (ISO 186 : 1994)

EN 20105 A03

Textiles - tests for colour fastness – Part A03: Grey scale for assessing staining (ISO 105 A03 : 1993)

ISO 8787

Paper and board – Determination of capillary rise – Klemm method

3 Terms and definitions

For the purposes of this Standard the following terms and definitions apply:

3.1 colour fastness: the lack of transfer of colour from a paper to a non stained glass-fibre paper, saturated with a test fluid and evaluated visually for staining against a grey scale or a blank.

4 Principle

A sample is brought into contact with glass fibre papers which have been saturated with a test fluid and placed under load for a given time. The staining of the glass fibre paper is evaluated with the grey scale. The staining of the glass fibre paper is evaluated against a blank or grey scale. The test fluids used are water, dilute acetic acid, sodium carbonate solution and olive oil depending on the type of contact expected.

5 Materials and equipment

5.1 Unstained glass fibre papers of 60 mm x 90 mm. The glass fibre papers shall meet the following conditions:

- a) grammage 70 g/m²;
- b) capillary rise of 190 mm to 210 mm in 10 min in accordance with ISO 8787;
- c) free from fluorescent whitened and wetstrength agents;
- d) free from cellulosic fibres.

5.2 Glass plates, 60 mm x 90 mm.

5.3 Polyethylene film, uncoloured and transparent.

5.4 Mass, 1 kg.

5.5 Grey scale in accordance with EN 20105 A03. This is only needed when grading is required.

6 Reagents

6.1 Distilled or deionised water

6.2 Aqueous acetic acid 3,0 % (m/v)

6.3 Sodium carbonate solution 5 g/l

6.4 Iso-octane (2,2,4-trimethylpentan)

6.5 Rectified olive oil, characterized as follows:

- iodine value (Wijs) 80 to 88
- refractive index at 25 °C 1,4665 to 1,4679
- acidity (expressed as % oleic acid) max. 0,5 %
- peroxide number (expressed as max. 10 oxygen milli-equivalents per kg oil)

7 Sampling

If a lot is tested then sampling is carried out in accordance with EN ISO 186.

8 Preparation of sample

Cut or punch several test pieces of 50 mm x 20 mm from the sample under investigation. Smooth edges shall be obtained.

9 Procedure A (long duration contact)

9.1 Immerse two sheets of glass fibre paper (5.1) in a test fluid (6.1, 6.2, 6.3, 6.4 or 6.5). Remove the sheets after saturation and free the sheets from excess fluid by wiping on the rim of the container.

9.2 Place one sheet of glass fibre paper with its smooth side upwards on the glass plate (5.2). Place the test piece (8) immediately on the glass fibre paper. Cover it with the second saturated sheet of glass fibre paper, so that the smooth side of the glass fibre paper is in contact with the test piece again. Place a second glass plate (5.2) on top of the second glass fibre paper and wrap the total assembly in polyethylene film (5.3) to prevent the edges from drying out, load it with a mass of 1 kg (5.4) and allow it to stand for 24 h at $(23 \pm 2) ^\circ\text{C}$ with protection against direct light penetration.

9.3 If test pieces of a grammage $> 140 \text{ g/m}^2$ are to be investigated, an appropriate even number of glass fibre paper layers (5.1) is used so that the total of their grammages just exceeds the grammage of the test piece.

Construct the assembly as described in 9.2, with each glass fibre paper being individually saturated and wiped, and arranged in such a way that the same number of glass fibre papers are in contact with both sides of the test piece.

9.4 After 24 h, open the assembly. Lay the glass fibre papers on 3 adjacent glass rods, $\varnothing 8 \text{ mm}$ to $\varnothing 10 \text{ mm}$, with the side which was in contact with the test piece upwards, cover them without contact to prevent light penetration and air-dry at ambient temperature. Glass fibre papers saturated with olive oil are not dried.

10 Procedure B (short time contact)

10.1 Immerse two sheets of glass fibre paper (5.1) in a test fluid (6.1, 6.2, 6.3, 6.4 or 6.5). Remove the sheets after saturation and free the sheets from excess fluid by wiping on the rim of the container.

10.2 Place one sheet of glass fibre paper with its smooth side upwards on the glass plate (5.2). Place the test piece (8) immediately on the glass fibre paper. Cover it with the second saturated sheet of glass fibre paper, so that the smooth side of the glass fibre paper is in contact with the test piece again. Place a second glass plate (5.2) on top of the second glass fibre paper and wrap the total assembly in polyethylene film (5.3) to prevent the edges from drying out, load it with a mass of 1 kg (5.4) and allow it to stand for 10 min at $(23 \pm 2)^\circ\text{C}$ with protection against direct light penetration.

10.3 After 10 min open the assembly. Place the glass fibre papers on three adjacent glass rods, \varnothing 8 mm to \varnothing 10 mm, with the side which was in contact with the test piece upwards, cover them without contact to prevent light penetration and air-dry at ambient temperature. Glass fibre papers saturated with olive oil are not dried.

11 Evaluation

Evaluate the staining of the glass fibre papers on the side with which they were in contact with the sample, using a blank or the grey scale (5.5). If grading is required use the grey scale in accordance to EN 20105 A03. When several layers of glass fibre papers are used, evaluate only the layer that was in contact with the test piece. If the two sides of the sample produce different results, the test report shall state to which side of the sample the data relates.

If the evaluation is done against a blank in order to detect any bleeding, the result is given as "yes" or "no". If a grading is provided a distinction is drawn between five different evaluation grades: Grade one signifies poor fastness; grade five signifies good fastness. The grade of the grey scale which is the most similar to the stained glass fibre paper is given as the evaluation grade of the tested paper.

NOTE 1: In the case that paper or board is coming into contact with foodstuffs only with one side (e. g. foodpackaging) and it is known which side is facing the food, only this side will be evaluated.

NOTE 2: As iso-octane is more severe than olive oil it is possible to show compliance using olive oil, if the test fails with iso-octane.

12 Report

The test report shall refer to this European Standard and state:

- a) test result;
- b) designation of the paper or board and identification of the sample tested; side tested if applicable;
- c) procedure A or B; evaluation yes/no or grading;
- d) test fluids and associated evaluation notes;
- e) date of test;
- f) any deviation from this European Standard.