

Tissue paper and tissue products - Part 7:
Determination of optical properties - Measurement of
brightness and colour with D65/10° (outdoor daylight)
(ISO 12625-7:2021)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 12625-7:2021 sisaldab Euroopa standardi EN ISO 12625-7:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 12625-7:2021 consists of the English text of the European standard EN ISO 12625-7:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.09.2021.	Date of Availability of the European standard is 15.09.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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English Version

Tissue paper and tissue products - Part 7: Determination
of optical properties - Measurement of brightness and
colour with D65/10° (outdoor daylight) (ISO 12625-
7:2021)

Papier tissue et produits tissue - Partie 7:
Détermination des propriétés optiques - Mesurage du
degré de blancheur et de la couleur en D65/10°
(lumière du jour extérieure) (ISO 12625-7:2021)

Tissue-Papier und Tissue-Produkte - Teil 7:
Bestimmung der optischen Eigenschaften - Brightness-
und Farbmessung mit Lichtart D65/10°
(Außentageslicht) (ISO 12625-7:2021)

This European Standard was approved by CEN on 14 August 2021.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 12625-7:2021) has been prepared by Technical Committee ISO/TC 6 "Paper, board and pulps" in collaboration with 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 2022, and conflicting national standards shall be withdrawn at the latest by March 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 12625-7:2014.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN websites.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 12625-7:2021 has been approved by CEN as EN ISO 12625-7:2021 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 12625-7:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

- alternative formulae in [11.2.1](#) have been removed because they were not relevant for tissue paper.

A list of all parts in the ISO 12625 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Brightness and colour measurement can be performed under various illumination and observation conditions. This document deals with D65/10° conditions, which refer to an outdoor daylight.

C/2° conditions (indoor daylight) are considered in ISO 12625-15. Although both International Standards deal with brightness and colour, results obtained are usually different and do not correlate.

Optical measurement is affected by the geometry of the instruments used and by the texture of the material. The design of the instrument to use according to this document and the routine to adopt for its calibration are specified in ISO 2469 and ISO 11475.

The optical properties are related to the visual appearance of the material. Therefore, although optical properties are intrinsic properties of tissue paper, they are not functional properties.

Brightness should not be confused with the optical property called CIE whiteness, which is based on reflectance data obtained over the full visible spectral range (VIS) in contrast to the measurement of brightness, which is limited to the blue region of VIS.

Due to its importance for some countries, three different test methods for the determination of optical properties were developed:

- this document, i.e. ISO 12625-7;
- ISO 12625-15;
- ISO 12625-16.

Tissue paper and tissue products —

Part 7:

Determination of optical properties — Measurement of brightness and colour with D65/10° (outdoor daylight)

1 Scope

This document specifies testing procedures for the instrumental determination of brightness and colour of tissue paper and tissue products viewed under outdoor daylight conditions. It also gives specific instructions for the preparation of test pieces (single-ply, multi-ply products) and for the optical measurements of products, where special precautions can be necessary.

NOTE The properties called ISO brightness and colour with C/2° (indoor daylight) are measured with an instrument adjusted to a much lower UV content than that specified in this document. The measurements of ISO brightness and colour with C/2° (indoor daylight) are described in ISO 12625-15.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 186, *Paper and board — Sampling to determine average quality*

ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 2469, *Paper, board and pulps — Measurement of diffuse radiance factor (diffuse reflectance factor)*

ISO 4094, *Paper, board and pulps — General requirements for the competence of laboratories authorized for the issue of optical reference transfer standards of level 3*

ISO 11475:2017, *Paper and board — Determination of CIE whiteness, D65/10 degrees (outdoor daylight)*

ISO/CIE 11664-4, *Colorimetry — Part 4: CIE 1976 L*a*b* colour space*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

diffuse radiance factor

R

ratio of the radiation reflected and emitted from a body to that reflected from the perfect reflecting diffuser under the same conditions of diffuse illumination and normal detection

Note 1 to entry: The ratio is often expressed as a percentage.