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# **Tissue paper and tissue products —**

## **Part 15:**

# **Determination of optical properties —**

## **Measurement of brightness and colour**

# **with C/2° (indoor daylight) illuminant**

*Papier tissue et produits tissue —*

*Partie 15: Détermination des propriétés optiques — Mesurage du degré de blancheur et de la couleur avec l'illuminant C/2° (lumière du jour à l'intérieur)*



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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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

ISO 12625-15 was prepared by European Committee for Standardization (CEN) Technical Committee CEN/TC 172 *Pulp, paper and board*, in collaboration with Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods for quality specifications for paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 12625 consists of the following parts, under the general title *Tissue paper and tissue products*:

- *Part 1: General guidance on terms*
- *Part 3: Determination of thickness, bulking thickness, apparent bulk density and bulk*
- *Part 4: Determination of tensile strength, stretch at break and tensile energy absorption*
- *Part 5: Determination of wet tensile strength*
- *Part 6: Determination of grammage*
- *Part 7: Determination of optical properties — Measurement of brightness and colour with D65/10° (outdoor daylight)*
- *Part 8: Water-absorption time and water-absorption capacity, basket-immersion test method*
- *Part 9: Determination of ball burst strength*
- *Part 11: Determination of wet ball burst strength*
- *Part 12: Determination of tensile strength of perforated lines — Calculation of perforation efficiency*
- *Part 15: Determination of optical properties — Measurement of brightness and colour with C/2° (indoor daylight)*
- *Part 16: Determination of optical properties — Opacity (paper backing) — Diffuse reflectance method*

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## Introduction

Brightness and colour measurement may be performed under various illumination and observation conditions. This part of ISO 12625 deals with C/2° conditions, which refer to an indoor daylight.

D65/10° conditions (outdoor daylight) are considered in ISO 12625-7. Although both standards deal with brightness and colour, results obtained are usually different and do not correlate.

Optical measurements are affected by the geometry of the instruments used and by the texture of the material. The design of the instrument to be used according to this part of ISO 12625, and the routine to be adopted for its calibration are specified in ISO 2469 and ISO 2470-1.

The optical properties are related to the visual appearance of the material in a specified illumination condition. Although optical properties are intrinsic properties of tissue paper, they are not functional properties.

Brightness is not to 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, brightness is limited to the blue region of VIS (visible spectrum).

As preferences for the properties to be specified can vary by country/market, three different test methods for the determination of optical properties were developed:

- *Part 7: Determination of optical properties — Measurement of brightness and colour with D65/10° (outdoor daylight);*
- *Part 15: Determination of optical properties — Measurement of brightness and colour with C/2° (indoor daylight);*
- *Part 16: Determination of optical properties — Measurement of opacity (paper backing) — Diffuse reflectance method.*