
**Tissue paper and tissue products —
Part 16:
Determination of optical properties
— Opacity (paper backing) — Diffuse
reflectance method**

Papier tissue et produits tissue —

*Partie 16: Détermination des propriétés optiques — Opacité sur fond
papier — Méthode par réflexion en lumière diffuse*

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

ISO 12625-16 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 and 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*

Introduction

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.

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

The opacity value depends on the principle used for its evaluation, and a method is to be chosen which most closely relates to the interpretation to be placed upon the results. The method described in this part of ISO 12625 is applicable when it is desired to measure that property of a tissue paper or tissue product which governs the extent to which one sheet visually obscures print on underlying sheets. It is not to be confused with methods based on the reduction in a standard contrast by interposition of the paper opacity (white backing), formerly known as contrast ratio, nor with the assessment of the amount and condition of light penetrating a sheet (transparency or translucency).

The calculation of opacity requires luminance-factor data obtained by measurement under specified conditions. The luminance factor depends on the conditions of measurement, and particularly on the spectral and geometric characteristics of the instrument used for its determination. This part of ISO 12625 is to be read in conjunction with ISO 2469.

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