INTERNATIONAL STANDARD

ISO 2471

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Paper and board — Determination of opacity (paper backing) — Diffuse reflectance method

Papier et carton — Détermination de l'opacité sur fond papier — Méthode de réflexion en lumière diffuse

Reference number
ISO 2471:2008(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 2471 was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This fourth edition cancels and replaces the third edition (ISO 2471:1998), which has been technically revised, in that a UV adjustment to conform to the CIE illuminant C is required if fluorescent whitening agents are present in the paper or board.

Introduction

The opacity value depends on the principle used for its evaluation, and a method should be chosen which most closely relates to the interpretation to be placed upon the results. The method described in this International Standard is applicable when it is desired to measure that property of a paper which governs the extent to which one sheet visually obscures printed matter on underlying sheets of similar paper. It should not 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 International Standard should therefore be read in conjunction with ISO 2469.

Paper and board — Determination of opacity (paper backing) — Diffuse reflectance method

1 Scope

This International Standard specifies a method for the determination of the opacity (paper backing) of paper by diffuse reflectance.

It can be used to determine the opacity of papers or boards which contain fluorescent whitening agents, provided the UV content of the radiation incident on the test piece has been adjusted to conform to that in the CIE illuminant C using a fluorescent reference standard provided by an ISO/TC 6 authorized laboratory as described in ISO 2470-1.

This International Standard is not applicable to coloured papers or boards which incorporate fluorescent dyes or pigments.

2 Normative references

The following referenced documents are indispensable for the application 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 2469, *Paper, board and pulps — Measurement of diffuse radiance factor*

ISO 2470-1, *Paper, board and pulps — Measurement of diffuse blue reflectance factor — Part 1: Indoor daylight conditions (ISO brightness)*

3 Terms and definitions

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

3.1
reflectance factor
R
ratio of the radiation reflected by a surface element of a body in the direction delimited by a given cone with its apex at the surface element to that reflected by the perfect reflecting diffuser under the same conditions of irradiation

NOTE The ratio is often expressed as a percentage.