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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 1543-2026

Replacing GB/T 1543-2005

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

纸和纸板 不透明度（纸背衬）的测定 漫反射法
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document supersedes GB/T 1543-2005 "Determination of Opacity (Paper Backing) of Paper and Paperboard (Diffuse Reflectance Method)" and is consistent with GB/T 1543-Compared to 2005, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2005 edition);
- b) The terminology and definition of the light reflection factor have been changed (see 3.2, 2005 edition);
- c) The reference criteria have been changed (see 5.2, 5.4 in the 2005 edition);
- d) A sample temperature and humidity treatment was added (see Chapter 6);
- e) The instrument accuracy requirement has been changed from 0.1% to 0.01% (see 8.1 and 8.2, 2005 editions of 8.1 and 8.2);
- f) The test report was amended (see Chapter 10, Chapter 11 in the 2005 edition);
- g) The instrument spectral characteristics have been changed (see Appendix A, Appendix A of the 2005 edition).

This document is modified to adopt ISO 2471:2008 "Determination of opacity (paper backing) of paper and paperboard - Diffuse reflectance method".

This document has undergone the following structural adjustments compared to ISO 2471:2008.

- a) Sections 5.2.1 and 5.2.2 of ISO 2471:2008 are combined into section 5.2 of this document;

b) Move the contents of section 5.3.1 of ISO 2471:2008 to section 5.1 of this document.

The technical differences between this document and ISO 2471:2008, and the reasons therefor, are as follows.

a) ISO 2470-1 (see Chapter 1, 5.1 and 5.2) has been replaced with the normatively referenced GB/T 7974 to adapt to my country's technical conditions;

b) The standard illuminant in the definition of the luminance factor (see 3.2) has been changed to align with measuring instruments and related standards in my country's paper industry.

Consistent;

c) The principle was modified (see Chapter 4) to adapt to my country's technological conditions;

d) ISO 2469 (see Chapter 4, 5.1, 5.2 and 5.3) has been replaced with the normatively referenced GB/T 7973 to adapt to Chinese technology.

condition;

e) The requirements for reflectance photometers have been modified (see 5.1, ISO 2471:2008 5.1) to adapt to the instrumentation requirements of my country's papermaking industry;

f) The requirements for the fluorescence reference standard (see 5.2, ISO 2471:2008) have been revised to suit the instrumentation conditions in my country's papermaking industry;

g) ISO 186 and ISO 187 have been replaced with the normatively referenced GB/T 450 and GB/T 10739 (see Chapter 6) to suit my needs.

National technical conditions;

h) The content regarding fluorescence reference standards in Chapter 8 (see 8.1 of ISO 2471:2008) has been deleted to adapt to my country's technical conditions;

i) The normative appendix A, "Spectral Characteristics of Reflectance Photometers for Determining Luminance Factor," has been revised to better suit the instrumentation needs of my country's papermaking industry.

condition.

The following editorial changes have been made to this document.

a) The note in 3.2 has been deleted;

b) Note 2 in 5.4 has been deleted;

c) Added note 2 to 9.2;

d) Move the precision section of Chapter 10 to Appendix B and add a table title for the precision data.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China National Light Industry Council.

This document is under the jurisdiction of the National Technical Committee on Standardization of Paper Industry (SAC/TC141).

1 Scope

This document describes a method for determining the opacity (paper backing) of paper and paperboard using diffuse reflectance.

This document applies to the determination of the opacity (paper backing) of white or near-white paper and paperboard. It is used to test samples containing fluorescent whitening agents.

At this time, the ultraviolet (UV) radiation energy level of the instrument must be adjusted to match the CIE standard illuminant according to the fluorescence reference standard in GB/T 7974.

Consistent with D65.

This document does not apply to colored paper and paperboard containing fluorescent dyes or pigments.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 450 Paper and paperboard specimen collection and determination of longitudinal and transverse directions, front and back sides of specimens (GB/T 450-2008, ISO 186.

2002, MOD)

GB/T 7973 Determination of diffuse reflectance factor of paper, paperboard and pulp (diffuse/vertical method) (GB/T 7973-2003, ISO 2469.

1994, NEQ)

GB/T 7974 Determination of blue light diffuse reflectance factor D65 luminance of paper,

paperboard and pulp (diffuse/vertical method, outdoor daylight conditions) (GB/T 7974-2013, ISO 2470-2:2008, MOD) GB/T 10739 Standard atmospheric conditions for the treatment and testing of paper, paperboard and pulp specimens (GB/T 10739-2023, ISO 187.

2022, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

reflection factor

The ratio of the radiant flux reflected by an object to the radiant flux reflected by a perfectly diffuse reflector under the same conditions.

Note: Expressed as a percentage.

luminous factor

The reflectance factor was determined under the spectral characteristics of the CIE standard illuminant D65 and the CIE 1964 supplementary standard chromaticity system (3.1).

single-sheet luminance factor the brightness factor of a single-layer paper pattern backing black tube.