

ICS 85.010

CCS Y 30



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

GB/T 12911-2025

Replacing GB/T 12911-1991

Paper and board - Determination of the ink absorbency

纸和纸板 油墨吸收性的测定

Issued on: August 29, 2025

Implemented on: March 1, 2026

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part

1. Rules for the structure and drafting of standardizing documents". This document replaces GB/T 12911-1991 "Paper and board - Determination of the ink absorbency". Compared with GB/T 12911-1991, in addition to structural adjustments and editorial modifications, the main technical changes are as follows:

- a) MODIFY the scope (see Clause 1 of this document; Clause 1 of the 1991 edition);
- b) DELETE the term and definition of ink absorption time (see 4.2 of the 1991 edition);
- c) MODIFY the relevant descriptions and requirements for equipment and materials (see Clause 5 of this document; Clause 5 of the 1991 edition);
- d) ADD the requirements for sample length deviation (see 6.2 of this document);
- e) DELETE the requirements for instrument inspection, preheating, and calibration (see 8.1 of the 1991 edition);
- f) MODIFY the relevant requirements for determining the green reflectance factor R_0 (see

8.1 of this document;

8.2 of the 1991 edition);

g) MODIFY the descriptions of the inking and ink-wiping methods, as well as the method for determining the reflectance factor of the sample after ink wiping (see 8.2,

1 Scope

GB/T 12911-2025 is the Chinese national standard on paper and board - determination of the ink absorbency, in the field of paper technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2026. Classification: ICS 85.010, CCS Y 30. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document describes the method for determining the ink absorbency of paper and board. This document applies to the determination of ink absorbency on various white or near- white printing paper and board.

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.

GB/T 450 Paper and board - Sampling for testing and identification of machine and cross direction, wire side and felt side

GB/T 7973 Paper, board and pulps - Measurement of diffuse reflectance factor (Diff/Geometry)

GB/T 10739 Paper, board and pulps - Standard atmosphere for conditioning and testing
QB/T 1020 Standard inks for testing printability of paper and board

3 Terms and definitions

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

3.1 ink absorbency Ability of paper and board to absorb standard ink within a specified time. NOTE. Expressed as ink absorption value, it is calculated by dividing the difference in

reflectance factors of the same surface of the sample before and after ink absorption by the reflectance factor of the sample before ink absorption.

4 Principle

Ink absorbency is expressed by determining the degree of decrease in the surface reflectance factor value of paper and board after absorbing standard absorbent ink on a standard area within a specified time.

5 Equipment and materials

5.1 Inking apparatus The inking apparatus includes an ink scraper, an inking platen, and a base (as shown in Figure 1). The opening of the inking platen is square with an area of $(20.0 \pm 0.4) \text{ cm}^2$, and the platen thickness is 0.10 mm.

5.2 Automatic ink-wiping device The automatic ink-wiping device uses ink-wiping paper to remove unabsorbed ink from the sample according to the specified ink absorption time, leaving a uniform ink mark. It generally includes a base, an ink-wiping table, a fan-shaped body, a motor, a paper roll shaft, a paper roll holder, etc. NOTE. An automatic ink-wiping device is used when employing the automatic ink-wiping method.

5.3 Reflectance photometer The instrument's geometric conditions and spectral characteristics shall comply with the relevant provisions of GB/T 7973.

5.4 Stopwatch The graduation value is

0.1 s.

5.5 Standard absorbent ink It complies with the provisions of QB/T 1020.

5.6 Ink-wiping paper Ink-wiping paper can effectively remove unabsorbed ink from the sample surface during the wiping process without causing any physical damage to the sample. NOTE. When manually wiping the ink, use toilet paper rolls with good flexibility and strength, and that do not easily shed lint; when automatically wiping the ink, use special paper that is compatible with the instrument and meets the requirements for ink-wiping performance and sample protection.

6 Sample collection and preparation

6.1 Sampling shall be carried out in accordance with the relevant provisions of GB/T 450.

6.2 Cut a sample with a length of $(210 \pm 5) \text{ mm}$ and a width of $(65 \pm 2) \text{ mm}$ at a distance of more than 15 mm from the edge of the sheet or roll of paper (the long side of the sample shall be aligned with the longitudinal direction of the sample), ensuring that there are no fewer than 5 usable samples on each tested surface (the front side for single-sided samples, and the front and back sides for double-sided samples). Each sample is stacked

face up, with a sample of the same material placed on top and bottom for protection.

7 Sample conditioning The samples shall be subjected to temperature and humidity conditioning in accordance with the provisions of GB/T 10739, and the sample preparation and testing shall be carried out under these atmospheric conditions.

8 Test procedure

8.1 Determination of reflectance factor of samples before inking According to the relevant provisions of GB/T 7973, use a reflectance photometer (5.3) to determine the green light reflectance factor R_0 of the sample surface before applying standard absorbent ink. Several layers of samples of the same material shall be placed under the test sample until it is opaque. Determine 5 samples sequentially.

8.2 Inking and ink wiping

8.2.1 Take a sample with a known green light reflectance factor R_0 and place it under the inking platen of the inking apparatus (5.1). When placing it, the test surface of the sample shall face upwards, the long side shall be parallel to the front-back direction of the inking platen, and the center line of the long side shall be aligned with the center position of the opening of the inking platen.

8.2.2 Stir the standard absorbent ink (5.5) thoroughly, take an appropriate amount and apply it to the front end of the inking platen, and use an ink scraper to evenly spread the ink along the long side of the sample onto the sample at the opening of the platen in one go, forming a square ink film with an area of $(20.0 \pm 0.4) \text{ cm}^2$ and a thickness of approximately

0.1 mm.

8.2.3 If using an automatic ink-wiping device (5.2), the absorption time shall be set to 2 min in advance, and the ink-wiping speed to $(15.5 \pm 1.0) \text{ cm/min}$. When manually wiping the ink, use a stopwatch (5.4) to time the process. After the ink absorption time reaches 2 min, immediately wipe off the unabsorbed ink on the sample with ink-wiping paper, completing the wiping within 10 s. The ink-wiping direction for both methods is unidirectional and consistent with the inking direction. After the above ink-wiping operation, ensure that a uniform ink mark with an area of $(20.0 \pm 0.4) \text{ cm}^2$ is left on the sample.

8.2.4 Repeat steps 8.2.1, 8.2.2, and 8.2.3, inking and wiping ink onto 5 samples sequentially.

8.3 Determination of reflectance factor of samples after ink wiping To prevent changes in ink marks due to external environmental influences, immediately after ink wiping, use a reflectance photometer to determine the green light reflectance factor R_1 of the central area of the ink mark on the sample. The determination shall be completed within 30 s. The