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

GB/T 459-2026

Replacing GB/T 459-2002

Paper and board - Determination of dimensional change

纸和纸板 伸缩性的测定

(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 replaces GB/T 459-2002 "Determination of Expansion and Stretchability of Paper and Paperboard". Compared with GB/T 459-2002, except for structural adjustments and...

Aside from editorial changes, the main technical changes are as follows.

- a) The terminology and definitions of scalability have been changed (see 3.1, Chapter 3 of the 2002 edition);
- b) The measuring tape has been removed (see 5.2 in the 2002 edition);
- c) The sample preparation method has been changed (see Chapter 7, 6.3 of the 2002 edition);
- d) Requirements for a stopwatch, water, enamel plate, glass plate, and filter paper have been added (see 8.1.3, 8.1.4, 8.1.5, 8.1.6, and 8.1.7);
- e) The result representation for Method B has been modified (see 9.3, 7.3 and 7.4 of the 2002 edition);
- f) The test report was amended (see Chapter 10, Chapter 8 of the 2002 edition).

This document is modified to adopt ISO 5635:1978 "Determination of dimensional changes of paper after immersion in water".

This document has undergone significant structural adjustments compared to ISO 5635:1978. A table comparing the structural numbering changes between the two documents is provided.

See Appendix A.

The technical differences between this document and ISO 5635:1978, and the reasons therefor, are as follows.

- a) The scope description has been changed (see Chapter 1) to conform to the drafting rules for Chinese national standard documents;
- b) The terminology and definitions of flexibility have been changed (see section 3.1) to suit my country's technical conditions;
- c) ISO 186 (see Chapter 5) has been replaced with the normatively referenced GB/T 450 to adapt to my country's technical conditions;
- d) ISO 187 (see Chapter 6) has been replaced with the normatively referenced GB/T 10739 to adapt to my country's technical conditions;
- e) The magnifying glass was removed to suit my country's technological conditions;
- f) The sample preparation method (see Chapter 7) has been modified to suit the current state of the industry in my country;
- g) The accuracy of the vernier calipers was modified (see 8.1.2) to adapt to the current state of the industry in my country;
- h) Requirements for a stopwatch, water, enamel pan, glass plate, and filter paper have been added (see 8.1.3, 8.1.4, 8.1.5, 8.1.6, and 8.1.7) to meet the requirements of the test.

Inspection requirements;

- i) The test procedures (see 8.2.1, 8.2.2, 8.2.3 and 8.2.4) and the presentation of results (see 8.3.1) have been modified to make the test procedures clearer;
- j) Content regarding the shrinkage and expansion of samples after immersion in water and air drying has been added (see 8.2.5 and 8.3.2) to meet the industry requirements in my country;
- k) Method B (see Chapter 9) was added to adapt to my country's technological conditions;
- l) The test report (see Chapter 10) was amended to adapt to my country's technical conditions.

The following editorial changes have been made to this document.

---Added note 8.2.6 regarding the testing of stratification after sample immersion.

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 two methods for determining the elasticity of paper and paperboard after immersion in water or after immersion in water and air drying.

This document applies to the determination of the elasticity of paper and paperboard.

This document does not apply to paper and paperboard that are extremely prone to tearing or excessive curling after being soaked in water.

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 1914 Chemical Analysis Filter Paper GB/T 6682 Specifications and test methods for water used in analytical laboratories (GB/T 6682-2008, ISO 3696:1987, 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.

Scalability dimensional change the changes in the longitudinal and transverse dimensions of paper and paperboard that have been pre-treated with temperature and humidity, after soaking in water, relative to their dimensions before soaking, or after soaking and then air drying.

Changes in longitudinal and transverse dimensions relative to their dimensions before immersion in water.

Note: Expressed as a percentage.

4 Principles

Immerse the sample in water until its length no longer changes, then measure the change in length. Next, allow the sample to air dry until its length no longer changes, then measure...

Measure the change in length. No load should be applied to the sample while it is wet.

Note: The strength of the sample is low after it is wetted, and even a very small load is enough to cause the sample to elongate.

5 Sampling

If the test is used to evaluate a batch of samples, the test specimens should be taken according to GB/T 450. If the test is used to evaluate other types of samples, it should be determined that...

Ensure that the samples taken are representative.