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

GB/T 7977-2026

Replacing GB/T 7977-2007

**Paper, board and pulps - Determination of conductivity of
aqueous extracts
(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 7977-2007 "Determination of Conductivity of Water Extracts from Paper, Paperboard and Pulp", and is consistent with GB/T 7977-2007.

In comparison, 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 2007 edition);
- b) The term and definition of "electrical conductivity" have been added (see Chapter 3);
- c) The requirements for test water have been changed (see Chapter 5, Chapter 4 of the 2007 edition);
- d) The requirements for sampling insulating paper, paperboard, and pulp have been changed (see 8.1.1, 7.1.2 of the 2007 edition);
- e) The content of quality assurance and control has been changed (see Chapter 10, Chapter 9 of the 2007 edition).

This document is modified to adopt ISO 6587:2021 "Paper, paperboard and pulp water extracts - Determination of conductivity".

This document has undergone significant structural adjustments compared to ISO 6587:2021. A table comparing the structural numbering changes between the two documents is provided.

See Appendix A.

The technical differences between this document and ISO 6587:2021, and the reasons therefor, are as follows.

- a) The scope has been revised (see Chapter 1) to include insulating paper, paperboard, and pulp to suit my country's technical conditions;
- b) The principle was modified (see Chapter 4) to suit my country's technological conditions;
- c) ISO 186 (see 7.1) has been replaced with the normatively referenced GB/T 450 to adapt to my country's technical conditions;
- d) ISO 287 and ISO 638-1 (see 7.3) have been replaced with the normatively referenced GB/T 462 to adapt to my country's technical conditions;
- e) ISO 7213 (see 7.1) has been replaced with the normatively referenced GB/T 740 to adapt to my country's technical conditions;
- f) The requirement to allow the use of water with higher conductivity in specific circumstances, with explanation provided (see 5.1 of ISO 6587:2021), has been removed.

Adapting to my country's technological conditions;

- g) The requirement for potassium chloride standard solution (see 5.2 of ISO 6587:2021) has been removed to adapt to my country's technical conditions;
- h) The instrument requirements have been changed (see Chapter 6) to suit my country's technical conditions;
- i) The determination of the cell conductivity constant (see 8.1 of ISO 6587:2021) has been removed to adapt to my country's technical conditions;
- j) The determination of conductivity of insulating paper, paperboard, and pulp water extract has been added (see 8.1) to adapt to my country's technical conditions;
- k) A boiling water bath method (see 8.1.3 and 8.2.3) has been added to adapt to my country's technical conditions;
- l) The calculation method for conductivity results has been modified (see 9.1) to adapt to my country's technical conditions;
- m) The calculation of resistance results has been removed (see 9.2 of ISO 6587:2021) to adapt to my country's technical conditions;
- n) The results for the conductivity of insulating paper, paperboard, and pulp water extract have been added (see 9.2) to adapt to my country's technical conditions;
- o) Quality assurance and control have been added (see Chapter 10) to improve data accuracy.

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 conductivity of paper, paperboard, and pulp water extracts.

This document applies to the determination of the conductivity of water extracts from various types of paper, paperboard, and pulp, including insulating paper, paperboard, and pulp.

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 462 Determination of moisture content in analytical samples of paper, paperboard and pulp (GB/T 462-2023, ISO 287:2017, ISO 638-1.

2022, ISO 638-2:2022, MOD) GB/T 740 Sampling of pulp specimens (GB/T 740-2003, ISO 7213:1991, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

conductivity

The effect of dissolved substances in a solution on its electrical conductivity was measured.

Note: The solution properties measured by conductivity differ from those of osmotic mass molar concentration or osmotic volume molar concentration, and equivalent results will not be produced. Conductivity only measures...

Measure substances that produce ions, but do not measure dissolved substances that do

not produce ions.

[Source. ISO 18369-1:2017, 3.1.6.7]

4 Principles

Extract a certain amount of sample with 100 mL of distilled or deionized water for 1 hour, and then measure the conductivity of the extract using a conductivity meter at a specified temperature.

The electrical conductivity.

5 Reagents

Distilled or deionized water should be used in the experiment, and its conductivity should not exceed 0.2 mS/m after a blank test. To ensure the experiment...

If the conductivity of the water meets the requirements, the cleanliness of the glassware used in the test should be checked.

6 Instruments

6.1 250 mL ground glass conical flasks, reflux condensers, beakers, and other standard glassware. All glassware should be prepared by boiling distillation.