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

GB/T 46758-2025

**Pulps - Kraft cooking liquor - Determination of total, active and
effective alkali (potentiometric titration)**

纸浆 硫酸盐法蒸煮液 总碱、活性碱和有效碱的测定（电位滴定法）

(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 is modified to adopt ISO 23774:2023 "Determination of total alkali, reactive alkali and other pollutants in pulp cooking liquor by potentiometric titration".

"Effective alkali".

This document has undergone the following structural adjustments compared to ISO 23774:2023.

- a) Move the portion of Chapter 5, Suspended Section, in ISO 23774:2023 to section 5.1, and renumber the subsequent clauses of Chapter 5 accordingly;
- b) Increased by 6.2;
- c) Divide Chapter 8 of ISO 23774:2023 into sections 8.1 to 8.4;
- d) Appendix A corresponds to Appendix B in ISO 23774:2023, and Appendix B corresponds to Appendix A in ISO 23774:2023.

The technical differences between this document and ISO 23774:2023, and the reasons therefor, are as follows.

- a) The requirements for test water have been revised, and the normative reference GB/T 6682 has been added to adapt to my country's technical conditions (see 5.1);
- b) The precision requirements for hydrochloric acid solution concentration have been modified to suit my country's technical conditions (see 5.2);
- c) The method for preparing standard buffer solutions was modified to suit my country's technical conditions (see 5.3);

- d) Adjust the note in 6.1 of ISO 23772:2023 to the content of the clause (see 6.1);
- e) A magnetic stirrer and stirring rod were added to ensure thorough mixing of the reactants (see 6.2);
- f) The requirement for parallel trials has been increased to improve data accuracy (see Chapter 9);
- g) The requirement to retain two significant figures for results in the report has been removed to ensure consistent result representation.

The following editorial changes have been made to this document.

- a) The standard title has been changed to "Determination of Total Alkali, Active Alkali and Effective Alkali in Pulp Sulfate Process Cooking Liquor (Polypotentiometric Titration)";
- b) The ISO and IEC terminology database URLs and some notes in the terminology and definitions chapter have been removed.

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 total alkali, active alkali, and available alkali in sulfate cooking liquor using potentiometric titration.

This document applies to the determination of total alkali, active alkali, and available alkali in sulfate cooking liquor (including white liquor and green liquor).

This document is not applicable to the analysis of white liquor containing a large amount of polysulfides, such as oxidized white liquor, nor is it applicable to the determination of specific ions, such as sulfide ions.

or carbonate ions.

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 6682 Specifications and test methods for water used in analytical laboratories (GB/T 6682-2008, ISO 3696:1987, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

Total Alkali

Under specified conditions, the concentration of alkaline substances is measured when the distillation liquor is titrated with a strong acid to the third inflection point of the titration curve.

activealkali

Under specified conditions, the concentration of alkaline substances other than carbonates is measured when the distillation liquor is titrated with a strong acid to the second inflection point of the titration curve.

Note: The active base is the sum of the concentrations of hydroxide and sulfide ions, including hydroxide ions formed by the hydrolysis of sulfides, see Appendix A.

effective alkali

Under specified conditions, the concentration of a strongly alkaline substance is measured when the distillation liquor is titrated with a strong acid to the first inflection point of the titration curve.

Note: Effective base is the concentration of hydroxide ions, including hydroxide ions formed by the hydrolysis of sulfides, see Appendix A.

4 Principles

Titrate the sample with a hydrochloric acid solution of known concentration, continuously recording the pH value of the reaction mixture (or a function of pH value) and the amount of hydrochloric acid consumed.

Volume, and determine the hydrochloric acid consumption at the inflection point based on the recorded data, and calculate the amount of hydrochloric acid in the sample based on the amount of hydrochloric acid required to reach the three inflection points.