

ICS 85.040
CCS Y 30



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

GB/T 47165-2026

**Lignins - Determination of lignin content in kraft lignin, soda
lignin and hydrolysis lignin**

木质素 硫酸盐木质素、碱木质素和水解木质素中木质素含量的测定

(English Translation)

Issued on: February 27, 2026

Implemented on: September 1, 2026

Issued by: State Administration for Market Regulation

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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 24196:2022 "Lignin content in lignin, alkali lignin and hydrolyzed lignin".

"Determination".

This document has undergone significant structural adjustments compared to ISO 24196:2022. A table comparing the changes in chapter and clause numbering between the two documents is provided.

See Appendix A.

The technical differences between this document and ISO 24196:2022, and the reasons therefor, are as follows.

- a) A description of the method detection limit has been added (see Chapter 1) to comply with the standard writing requirements;
- b) The definitions of the terms "sulfate lignin" and "alkali lignin" have been changed (see 3.2 and 3.3, ISO 24196:2022 3.2 and 3.3).
- 3.3), to comply with standard writing requirements;
- c) Added the terms and definitions for "8% lithium chloride/dimethyl sulfoxide" and "ball-milled lignin sample powder" (see 3.8 and 3.9).
- 3.9), to adapt to my country's technological conditions;
- d) The requirement for oven type (see 5.4 of ISO 24196:2022) has been removed to accommodate my country's technical conditions;
- e) The normative reference GB/T 6682 (see 4.3.1) has been added to adapt to my country's

technical conditions;

- f) The preparation method for 72% sulfuric acid (H₂SO₄) solution has been modified (see 4.3.2, 6.2 of ISO 24196:2022) to improve safety;
- g) A method for preparing 4% sulfuric acid (H₂SO₄) solution has been added (see 4.3.3) to adapt to my country's technical conditions;
- h) A normative reference document GB/T 22902 (see 4.4) has been added to adapt to my country's technical conditions;
- i) The volume of the beaker was changed (see 4.6, Chapter 9 of ISO 24196:2022) to simplify the test procedure;
- j) The requirement for retaining a certain number of decimal places in the calculation results has been increased (see 4.8) to adapt to my country's technical conditions;
- k) A lithium chloride/dimethyl sulfoxide-UV spectrophotometry method (LiCl/DMSO-UV method) has been added (see Chapter 5) to improve the standard.

applicability;

- l) The requirements for test reports have been changed (see Chapter 6, Chapter 13 of ISO 24196:2022) to adapt to my country's technical conditions.

The following editorial changes have been made to this document.

- a) The URLs for the ISO and IEC standardized terminology databases have been removed;
- b) The notes in the principle of the two-step hydrolysis method have been deleted;
- c) Note 2 in the determination of acid-soluble lignin has been deleted.

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 two-step hydrolysis method and a lithium chloride/dimethyl sulfoxide-UV spectrophotometric method (LiCl/DMSO-UV method) for the determination of sulfuric acid.

Methods for determining the lignin content in salt lignin, alkali lignin, and hydrolyzed lignin.

This document applies to lignin separated from sulfate pulping processes, caustic soda pulping processes, or lignin obtained through hydrolysis of biomass.

Quality determination.

This document specifies that the detection limit for both methods is 0.05%.

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) GB/T 22902 Determination of acetone-soluble matter in pulp (GB/T 22902-2025, ISO 14453:2014, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

lignins

A class of complex organic macromolecules containing aromatic units, they play a crucial role in the formation of cell walls in wood and bark, endowing cells with...

The mechanical strength and hardness of the wall and the entire plant.

Note: Lignin is the main non-carbohydrate component of wood.

Sulfate lignin kraftlignin Desulfurized and chemically modified lignin separated from the sulfate pulping process.

Example. Lignin in black liquor from sulfate pulping.

Alkali lignin (sodalignin) Depolymerized and chemically modified lignin separated from the alkaline pulping process.

Example. Lignin in black liquor from alkaline pulping.