

ICS 85.010

CCS Y 30



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

GB/T 4688-2020

Replacing GB/T 4688-2002

Paper, board and pulp--Analysis of fiber furnish

Issued on: July 21, 2020

Implemented on: February 1, 2021

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

1 Scope

2 Terms and definitions

3 Principle

4 reagent

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 4688-2002 "Analysis of the Composition of Paper, Cardboard and Pulp Fiber", and compared with GB/T 4688-2002, except for

The main technical changes in addition to the editorial modification are as follows.

---Modified the scope (see Chapter 1, Chapter 1 of the.2002 edition);

---Modified the standard fiber used to calculate the quality factor from cotton linters to cotton fibers (see Chapter 2, Chapter 9 of the.2002 edition);

---Modified the expression of the principle (see Chapter 3, Chapter 3 of the.2002 edition);

--- "Instrument" added a fiber analyzer (see Chapter 5);

---Modified the sampling amount for sample preparation from 0.5g to 0.25g (see Chapter 6, Chapter 6 of the.2002 edition);

---Added the test procedure of using the fiber analyzer to determine the fiber composition by the number method (see 8.2.1.3);

---Added the length method to determine the fiber composition analysis method (see 8.2.2).

This standard uses the redrafting method to amend and adopt ISO 9184-1.1990 "Analysis of the composition of paper, paperboard and pulp fibers-Part 1.General

Methods", ISO 9184-2.1990 "Analysis of the composition of paper, paperboard and pulp fibers Part 2.Dyeing guidelines", ISO 9184-3.1990 "Paper,

Analysis of fiber composition of paperboard and pulp. Part 3.Herzberg dyeing test, ISO 9184-4.1990 "Paper, paperboard and pulp fiber group

Composition Analysis Part 4.Graff "C" Dyeing Test", ISO 9184-5.1990 "Paper, Paperboard and Pulp Fiber Composition Analysis Part 5.

Lofton-Merritt staining test (modified Wisbar method)".

This standard and ISO 9184-1.1990, ISO 9184-2.1990, ISO 9184-3.1990, ISO 9184-4.1990, ISO 9184-5.

Compared with.1990, there are more adjustments in structure. Appendix A lists this standard and ISO 9184-1.1990, ISO 9184-2.1990,

ISO 9184-3.1990, ISO 9184-4.1990, ISO 9184-5.1990 chapter number comparison list.

This standard and ISO 9184-1.1990, ISO 9184-2.1990, ISO 9184-3.1990, ISO 9184-4.1990, ISO 9184-5.

The technical differences in.1990 and their reasons are as follows.

--- Deleted ISO 9184-1.1990, ISO 9184-2.1990, ISO 9184-3.1990, ISO 9184-4.1990, ISO 9184-5.

Chapter 2 normative references in.1990;

--- Deleted the terms and definitions "Fiber Composition Analysis" in ISO 9184-1.1990;

---Chapter 3 adds the principle of length method to quantitatively determine fiber composition;

--- Chapter 5 adds 5.2, 5.13 and 5.14;

---8.2.1.3 The test procedure for determining the fiber composition using the fiber analyzer for the number method is added;

--- 8.2.2 Increased the length method to determine the method of fiber composition analysis;

--- Delete 10.3 of ISO 9184-1.1990 in Chapter 9;

---Appendix C revised the ratio of zinc chloride solution in 4.1 of ISO 9184-3.1990 and the number of drops of dye in 5.1;

---The number of dye drops in 5.1 of ISO 9184-4.1990 is revised in Appendix D.

This standard has made the following editorial changes.

---Modified the standard name.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard was proposed by the China National Light Industry Council.

This standard is under the jurisdiction of the National Paper Industry Standardization Technical Committee (SAC/TC141).

Drafting organizations of this standard. China Pulp and Paper Research Institute Co., Ltd.,

Zhuhai Hualun Paper Technology Co., Ltd., Beijing Lunhua Technology Co., Ltd.

The company, Dongguan Quality Supervision and Inspection Center of Guangdong Province (National Paper Product Quality Supervision and Inspection Center).

1 Scope

This standard specifies the analysis method for the fiber composition of paper, cardboard and pulp.

This standard applies to all kinds of pulp, as well as paper and cardboard except highly impregnated or highly colored.

Note. Highly impregnated or highly colored paper and cardboard may affect the fiber structure or dyeing reaction when dispersed or decolorized.

2 Terms and definitions

The following terms and definitions apply to this document.

2.1

Fiber coarseness

The mass per unit length of a specific fiber (absolute dry weight).

Note. The unit is milligrams per meter (mg/m).

2.2

Weight factor

The ratio of the fiber thickness of a specific fiber to the thickness of a standard (designated) fiber.

Note. The traditional method uses cotton fiber as the standard fiber to compare with other fibers. The fiber thickness of cotton fiber is 0.180mg/m (defining the quality of cotton fiber

The quantity factor is 1.00), the quality factor f of a particular fiber can be obtained by the ratio of its fiber thickness to the thickness of cotton fiber, which can be calculated according to formula (1)

And got.

$f =$

0.180

(1)

Where.

f-quality factor;

c --- Fiber thickness, in milligrams per meter (mg/m).

3 Principle

Fiber composition analysis is to take a small amount of representative fibers from the tested sample for dyeing, and then observe with a fiber analyzer or microscope.

Qualitative analysis is carried out according to the dyeing reaction of the fiber and the morphological characteristics of the fiber. Measure the number of intersections between various fibers and the counting line or measure

For each fiber length within a certain range, the quality factor is used to convert the number of crossing points or length into a mass score for quantitative analysis.

4 reagent

Unless otherwise specified, only use reagents and distilled or deionized water or equivalent purity water confirmed to be analytically pure in the analysis.

4.1 Sodium hydroxide (NaOH) solution, the mass fraction is about 1%, each liter of solution contains 10g of sodium hydroxide.

4.2 Hydrochloric acid (HCl) solution, the mass fraction is about 0.2%, each liter of solution contains 5mL of hydrochloric acid.

4.3 Phosphoric acid (H₃PO₄) solution, the mass fraction is about 5%, each liter of solution contains 35mL of 85% phosphoric acid.