

Fibre furnish analysis of paper, board and pulps —

Part 1: General method

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Paper and Printing Standards Policy Committee (PAM/-) to Technical Committee PAM/11, upon which the following bodies were represented:

- British Fibreboard Packaging Association
- British Paper and Board Industry Federation (PIF)
- British Printing Industries Federation
- British Telecommunications plc
- Envelope Makers' and Manufacturing Stationers' Association
- Her Majesty's Stationery Office
- Man-made Fibres Producers' Committee
- Ministry of Defence
- Pira (the Research Association for the Paper and Board, Printing and Packaging Industries)
- Post Office
- Society of British Printing Ink Manufacturers
- University of Manchester Institute of Science and Technology

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National foreword

This Part of BS 7463 has been prepared under the direction of the Paper and Printing Standards Policy Committee. It is identical with ISO 9184-1:1990 “*Paper, board and pulps — Fibre furnish analysis — Part 1: General method*”, published by the International Organization for Standardization (ISO).

Cross-reference

International standard	Corresponding British Standard
ISO 9184-2:1990	BS 7463 <i>Fibre furnish analysis of paper, board and pulps</i> Part 2:1991 <i>Guide to staining</i> (Identical)

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This part of ISO 9184 specifies the general performance of the test for fibre furnish analysis (see 3.1) of paper, board and pulps.

It is applicable to all kinds of pulps and to most papers and boards, including those containing more than one kind of fibre, taking into account different pulping processes.

This method is less suitable to heavily impregnated or highly coloured papers and boards, which cannot be dispersed or decoloured without affecting the structure or the staining reactions of the fibres.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 9184. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9184 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 9184-2:1990, *Paper, board and pulps — Fibre furnish analysis — Part 2: Staining guide.*

3 Definitions

For the purposes of this part of ISO 9184, the following definitions apply.

3.1

fibre furnish analysis

determination of the fibre components of paper, board and pulp samples as regards the species of fibres and the method of processing

the fibre furnish analysis may be carried out qualitatively or quantitatively

3.2

fibre coarseness, c

means mass (oven dry) per unit length for a particular type of fibre, generally expressed in milligrams per metre

3.3

weight factor, f

the ratio of the fibre coarseness of a particular type of fibre to that of a reference fibre

NOTE 1 Traditionally, cotton staple (rag) fibre was selected as the reference fibre to which all other fibres were compared. The weight factor of cotton fibre was taken as 1,00, and the fibre coarseness of that fibre was determined to be 0,180 mg/m. The weight factor of a particular type of fibre can be derived from its fibre coarseness by the expression

$$f = \frac{c}{0,180}$$

where

f is the weight factor;

c is the fibre coarseness, in milligrams per metre.

4 Principle

The fibre furnish analysis is carried out under the microscope on a small quantity of stained fibres representative of the sample being tested:

- qualitatively, on the basis of the stain reactions and the morphological characteristics of the fibres;
- quantitatively, by counting the number of crossings of various kinds of fibres with the counting line and by transforming the number of counts into the percentages by weight by the application of weight factors.

5 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

5.1 Sodium hydroxide, solution, about 1 % (m/m) containing 10 g sodium hydroxide (NaOH) per litre.

5.2 Hydrochloric acid, solution, about 0,2 % (m/m), containing 5 ml of concentrated hydrochloric acid (HCl) per litre.

5.3 Phosphoric acid, solution, about 5 % (m/m), containing 35 ml of 85 % (m/m) phosphoric acid (H_3PO_4) per litre.

5.4 Aluminium sulfate, solution, about 5 % (m/m), containing 50 g of aluminium sulfate [$Al_2(SO_4)_3$] per litre.

5.5 Potassium permanganate, solution, about 6,5 % (m/m) containing 65 g of potassium permanganate ($KMnO_4$) per litre.

5.6 Oxalic acid, solution, about 5 % (m/m), containing 50 g of oxalic acid ($C_2H_2O_4 \cdot 2H_2O$) per litre.

5.7 Organic solvents, ethanol (C_2H_5OH), diethyl ether ($C_2H_5OC_2H_5$), ethyl acetate ($CH_3COOC_2H_5$), acetone (CH_3COCH_3), xylene [$C_6H_4(CH_3)_2$], toluene (C_7H_8), chloroform ($CHCl_3$), tetrachloroethene (C_2Cl_4) and trichloroethane ($C_2H_3Cl_3$).