
**Textiles — Cotton fibres —
Determination of micronaire value**

Textiles — Fibres de coton — Détermination de l'indice micronaire



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 23, *Fibres and yarns*.

This third edition cancels and replaces the second edition (ISO 2403:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

- an introduction clause has been added;
- a short description of the available apparatus, operation details and reference to calibration method in [5.2](#), Notes 1 and 2, respectively, has been added ;
- permission of the use of two different sample preparation methods have been added in [7.2](#);
- the specification of applied sample preparation method, the date of the test, any deviations from the procedure, and any unusual features observed have been added in the test report in [Clause 10](#);
- former Annexes B and C (operation of different instruments) have been removed;
- a new informative [Annex B](#) with precision data for micronaire measurements has been added;
- a new informative [Annex C](#) with precision data for comparison of the both test specimen preparation methods has been added;
- a bibliography has been added;
- grammar and linguistic consistency have been reviewed.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The micronaire value, one of the most important cotton fibre quality parameters, is measured on a plug of cotton fibres, it hence represents an average value. Due to a simple test specimen preparation, a measurement is carried out in relatively short time and thereby leads to fast testing results.

Based on the air permeability of a compressed cotton fibre test specimen, early manual micronaire testers used a mechanical air-flow meter, where a float sensor indicates the amount of air flowing through the test specimen, and a mechanical manometer showing the air pressure difference across the test specimen. Modern micronaire testers generally use electronic sensors for both, the air flow and the pressure difference.

In any case, the dimensionless micronaire value is calculated from the air flow through the test specimen and the pressure difference along the test specimen. Micronaire values are within a scale of 2 and 8, where a value of 2 represents a low air permeability (high packing density of the test specimen, caused by very fine and/or immature fibres) and a value of 8 represents a high air permeability (low packing density of the test specimen, caused by very coarse and/or mature fibres).

Textiles — Cotton fibres — Determination of micronaire value

1 Scope

This document specifies a method of determining the micronaire value of loose disorientated cotton fibres taken from bales, laps and slivers, or other sources of lint cotton.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 1130, *Textile fibres — Some methods of sampling for testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

micronaire value

measure for the air permeability of a mass of cotton under specified conditions

Note 1 to entry: The micronaire scale is based on a range of cottons to which micronaire values have been assigned by international agreement.

Note 2 to entry: It is expressed in terms of an arbitrary scale, the so-called micronaire scale.

4 Principle

Air is passed through a test specimen consisting of a plug of fibres. The permeability is indicated on a scale for recording variations in either the rate of flow through, or the pressure difference across, the plug. The mass and volume of the test specimen are either a constant for a given type of instrument or varied appropriately in relation to each other. The scale indicating variations in permeability can be calibrated in arbitrary units of micronaire value or marked in the appropriate absolute units of rate of flow or of pressure difference and a table or graph provided for conversion of the observed readings into micronaire values.

5 Apparatus and materials

5.1 Balance, of sufficient capacity to weigh the test specimen required for the airflow instrument used, with an accuracy of $\pm 0,2$ %.