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**Textiles — Unevenness of textile
strands — Capacitance method**

Textiles — Irrégularité des fils textiles — Méthode capacitive



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 16549 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 23, *Fibres and yarns*.

This International Standard cancels and replaces ISO 2649 which is now obsolete.

Introduction

In the 1960s the International Wool Textile Organization (IWTO) prepared an unevenness method destined for yarns and other strands made of wool. The method was adopted by ISO as ISO 2649:1974. It contains a discussion of the principles of unevenness testing and refers to the then-popular unevenness tester, the 1960s model of the Uster Evenness Tester, which was obsolete in mid-2000 when the present International Standard was written. Later, the IWTO prepared a new method, IWTO-18-00, published in 2000.

ISO 16549 has mostly new wording but includes some elements of ISO 2649 and of IWTO-18-00 – with thanks to IWTO.

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Textiles — Unevenness of textile strands — Capacitance method

1 Scope

This International Standard describes a method, using capacitance measuring equipment, for determining the unevenness of linear density along the length of textile strands.

The method is applicable to tops, slivers, rovings, spun yarns and continuous filament yarns, made from either natural or man-made fibres, in the range of 4 tex (g/km) to 80 ktex (kg/km) for staple-fibre strands and 1 tex (g/km) to 600 tex (g/km) for continuous-filament yarns. It is not applicable to fancy yarns or to strands composed fully or partly of conductive materials such as metals; the latter require an optical sensor (see A.4).

The method describes the preparation of a variance-length curve, as well as the determination of periodicities of linear density. It covers also the counting of imperfections in the yarn, namely of neps and of thick and thin places.

Irregularities in the distribution of additives such as sizes, in moisture content and in fibre blending may increase the measured unevenness above its true value.

2 Normative references

The following referenced documents are indispensable for the application 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*

3 Terms and definitions

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

3.1

unevenness

variation of linear density along the length of a continuous strand or yarn

NOTE The term is also used occasionally for the variation of yarn diameter.

3.2

coefficient-of-variation unevenness

CV_u

value of **unevenness** (3.1) expressed as a coefficient of variation

NOTE 1 The coefficient-of-variation unevenness is expressed in percent, for example $CV_u = 18,3 \%$.

NOTE 2 See also 4.5 and 4.6.

3.3

mean-deviation unevenness

U_u

value of **unevenness** (3.1) expressed as an average mean deviation

NOTE 1 The mean-deviation unevenness is expressed in percent, for example, $U_u = 14,6 \%$.