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Textiles — Chenille yarns — Test method for the determination of linear density

Textiles — Fils chenilles — Méthode d'essai pour la détermination de la masse linéique

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Foreword

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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.

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ISO 23733 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 23, *Fibres and yarns*.

Introduction

The variation in linear density of chenille yarns is inherently higher than for more conventional yarns covered by ISO 2060. It is expected, therefore, that sampling plans for chenille yarns will involve greater numbers of specimens. To help readers of this International Standard to gain an appreciation of the inherently higher variation level associated with these novelty yarns, Table 1 has been provided. This table was developed from several prominent chenille manufacturers, where yarns of multiple fibre types and linear densities were evaluated. Table 1 is provided as a tool for manufacturers of chenille yarns to gauge the quality of their products relative to the industry average.

Textiles — Chenille yarns — Test method for the determination of linear density

1 Scope

This International Standard specifies a test method for the determination of the linear density of chenille yarns.

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
chenille yarn
novelty yarn with pile protruding radially from the axis, where the pile fibres are held between a core yarn system

3.2
core yarn
set of yarns that serve as an extended axis to anchor the pile

3.3
moisture equilibrium
condition reached by a sample at a closely defined temperature and relative humidity, when the net difference between the amount of moisture absorbed and the amount desorbed, as indicated by a change in mass, shows no trend and becomes of no practical significance

NOTE See ISO 139.

3.4
pile
raised tufts (cut loops) deliberately emplaced to stand away from the surface of the fabric

3.5
skein
continuous strand of yarn in the form of a collapsed coil

3.6
yarn linear density
mass per unit length of yarn

NOTE The yarn linear density is expressed in tex or its multiples or submultiples.

3.7
yarn number
relative measure of the fineness of a yarn, expressed as mass per unit length

3.8
yarn package
length or lengths of yarn in a form suitable for use, handling, storing, or shipping

NOTE Packages may be comprised of unsupported yarn, such as balls or skeins, or supported yarn, such as cakes, bobbins, cops, cones, spools, tubes or beams.

3.9
sample skein
length of yarn removed from the yarn package, having a suitable length for conducting the prescribed testing

3.10
test skein
small skein (removed from sample skein) which has a prescribed length of yarn, and is used for the determination of linear density

4 Principle

The linear density of chenille yarns is calculated from the length and mass of conditioned skeins. Specimens of suitable length are prepared by reeling test skeins under specified conditions from sample skeins that have been appropriately conditioned.

5 Apparatus

5.1 Reel

5.1.1 General

This is a hand reel or motor driven reel having a perimeter of 1 000 mm. A tolerance of ± 0,25 % is recommended. By prior agreement, reels having a perimeter of between 1,0 and 2,5 m may be used. The reel shall be fitted with a traversing mechanism that will avoid bunching successive wraps of yarn, and with an indicator of the length wound.

5.1.2 Reel circumference

Determine the actual perimeter of the reel by winding a 0,6 cm wide steel measuring tape around the reel. Tension the tape prior to directly reading the circumference of the reel, by attaching a 0,5 kg weight at the end of the bars of the reel, and in the centre. If the circumference at any of these areas is outside the limits of 1 000 mm ± 2,5 mm, adjust the flywheel to bring the measurement(s) within the limits.

5.1.3 Yarn tensioning

The reel shall be fitted with either a positive feed system at a controlled tension of 0,5 cN/tex, or with an adjustable tension device. The length of the skeins should be checked, and variations in length not be allowed to exceed ± 0,25 % (see Annex A).

5.2 Balance

For the determination of the average yarn linear density, a balance of suitable capacity, graduated in grams, with a sensitivity of 1 part in 1 000, should be used. If single skeins are weighed, a balance graduated directly in yarn linear density may be used.

6 Standard atmospheres

Condition sample and test specimen skeins to achieve moisture equilibrium as specified in ISO 139.

Any departure from the standard conditioning atmospheres should be agreed by the interested parties and the temperature and humidity used should be stated in the test report.

7 Sampling

Sampling from the bulk sample will be conducted in such a manner that they are representative of the lot (consignment) to be tested.

The bulk sampling approach shall be carried out in one of the following ways:

a) according to directions, if any, given in the material specification;

b) according to procedures approved by ISO for textile products, if directions on sampling are not included in the material specification;

c) according to the method and guidance given in Annex B.

8 Tension for reeling

8.1 Take two packages from a case selected randomly from the lot. Discard the first 25 m from the beginning of each package to avoid possible damaged portions of a package. When reeling skeins, the yarn shall be taken from the end of the yarn package if this is the normal method of use; otherwise, the yarn shall be taken from the side of the yarn package.

8.2 To establish the required tension for reeling, reel a skein from two packages to check the skein length (see Annex A). If the length of a skein departs from the set length of the reel's circumference and number of turns by more than 0,25 %, adjust the reeling tension and run additional skeins until the skeins fall within the ± 0,25 % tolerance. It may be a useful practice in determining the skein test length, if the skeins are conditioned prior to measurement and before tension adjustments are made. If yarn is supplied in more than one type of yarn package, check skeins from two packages of each type of yarn package, as described above. It may be necessary to use different reeling tensions for each package type.

8.3 Once the correct tension for reeling has been established for each type of yarn package, no additional tension rechecking or verification of skein length is required.

8.4 Reel a sample skein with enough length for unwinding to form the number of individual test specimen skeins required (see 9.3).

9 Test specimens

9.1 The length of a skein for the measurement of linear density shall be 25 m.

9.2 Using the winding tension described in 8.2, unwind the sample skein in such a manner that the yarn traverses the full width permitted by the reel to reduce the superimposition of the subsequent yarn layer. Cut the skein free from the sample skein, tie the ends of the test specimen skein together and cut the loose ends short (less than 2,5 cm). Remove skein to a skein holder or board for weighing.

9.3 Prepare the number of skeins, as directed in a material specification, if applicable. Otherwise, take three skeins from each sample skein.