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Reinforcement yarns — Determination of twist balance index

Fils de renfort — Détermination de l'indice d'équilibre en torsion

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Foreword

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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 3343 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

This third edition cancels and replaces the second edition (ISO 3343:1984), of which it constitutes a minor revision. The following changes have been made:

a) the scope has been broadened to include all reinforcement yarns;

b) the sampling clause has been deleted (the sampling standard, ISO 1886, referred to in the previous edition has been withdrawn without replacement);

c) a clause concerning conditioning and the test atmosphere has been added.

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Reinforcement yarns — Determination of twist balance index

1 Scope

This International Standard specifies a method for determining the twist balance index of folded yarn and cabled yarn made from textile glass, carbon, aramid or any other reinforcement fibre.

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 291, *Plastics — Standard atmospheres for conditioning and testing*

3 Principle

A yarn is arranged in an open loop of specified length and width and the number of turns the yarn makes on itself is counted.

4 Test specimens

The determination is carried out on five specimens taken consecutively from an elementary unit [1)] or laboratory sample [2)].

5 Conditioning and test atmosphere

No conditioning is required. However, in cases of dispute, the determination shall be carried out in one of the standard atmospheres defined in ISO 291.

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1) The elementary unit is the smallest normally commercially available entity of a given product.

2) A laboratory sample is a part of the elementary unit from which the specimen(s) will be selected for the test. A laboratory sample is taken when it is impractical to bring the elementary unit into the test laboratory.

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6 Procedure

6.1 Unwind tangentially the first 50 m of yarn from a package in order to obtain a representative test specimen from this package. Pinch the yarn between thumb and forefinger; do not cut the yarn.

6.2 Further unwind tangentially an additional 1 m of yarn, which constitutes the first test specimen. As described in 6.1, pinch the yarn without cutting it. Let the yarn hang to form an open loop, with the two ends of the specimen held 100 mm apart.

6.3 Note the number of turns, N_i, the yarn makes on itself, and the direction (S or Z) in which the loop twists. The counting may be done while untwisting the yarn.

6.4 Repeat the operation described in 6.2 five times, with the specimens immediately succeeding each other and taking care to take the yarn near the package in order to avoid any loss of twist. Note the result as described in 6.3.

7 Expression of results

The twist balance index, E_i, of the yarn is represented by the number of turns, N_i, the yarn makes on itself:

$$E_i = N_i$$

The result of the determination of the twist balance index is the arithmetic mean of the values obtained for the five specimens tested, rounded to the first decimal place.

8 Test report

The test report shall include the following information:

a) a reference to this International Standard;

b) all details necessary for complete identification of the sample tested;

c) the method used to unwind the yarn;

d) the result of the determination (twist balance index and direction of the twist in the loop) and, if required, the result for each specimen;

e) details of any operations not specified in this International Standard, as well as details of any incidents which might have affected the results;

f) the date of the test.

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