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**TEXTILES - PARA-ARAMID MULTIFILAMENT**

**YARNS - TEST METHODS**

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English version

## Textiles - Para-aramid multifilament yarns - Test methods

Textiles - Fils multifilaments para-aramides - Méthodes  
d'essai

Textilien - Para-Aramid Filament-Garne - Prüfverfahren

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## **Foreword**

This European Standard has been prepared by Technical Committee CEN/TC 248 "Textiles and textile products", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

The generic term aramid fibre is defined in ISO 2076:1989. From the group of aramid fibres, para-aramid filament yarns are used for high performance products mostly for industrial and technical textile applications.

Test methods for para-aramid filament yarns for fibre reinforcement of plastics are published by CEN/TC 249.

## 1 Scope

This standard specifies test methods applicable for para-aramid filament yarns designed for high performance applications. It applies to para-aramid filament yarns for cables, ropes, belts, braids and fabrics as used for sports, protective and industrial-textile applications, reinforced rubber goods, tires etc. It is not applicable for para-aramid filament yarns for fibre reinforced composites.

This standard refers to European standards, but specifies test requirements in addition where needed. The test methods apply to filament yarns and plied or cabled yarns (cords) twisted from such yarns.

This standard includes the following test methods:

- determination of linear density (see 7.2);
- determination of breaking force, elongation at break, modulus and force at specified elongation (see 7.3);
- determination of twist (see 7.4).

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN ISO 291: 1997	Plastics - Standard atmospheres for conditioning and testing (ISO 291 : 1997)
EN 20139 : 1992	Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973)
EN ISO 2060 : 1995	Textiles - Yarn from packages - Determination of linear density (mass per unit length) by the skein method (ISO 2060:1994)
EN ISO 2061 : 1995	Textiles - Determination of twist in yarns -Direct counting method (ISO 2061: 1995)
EN ISO 2062 : 1995	Textiles - Yarn from packages - Determination of single-end breaking force and elongation at break (ISO 2062:1993)
EN ISO 2231 : 1995	Rubber- or plastics coated fabrics - Standard atmospheres for conditioning and testing (ISO 2231: 1989)
ISO 471 : 1995	Rubber - Temperatures, humidities and times for conditioning and testing

ISO 2076 : 1989	Textiles - Man-made fibres - Generic names
ISO 10012-1 : 1992	Quality assurance requirements for measuring equipment - Part 1: Metrological confirmation system for measuring equipment.

### 3 Definitions

For the purposes of this standard the following definitions apply:

**3.1 cabled yarn; cord:** Yarn with two or more yarns, of which at least one is a folded yarn, combined by one or more twisting operations.

NOTE : For certain industrial uses, the term cord is used for folded or cabled yarns.

**3.2 clamps:** Parts of a testing device used to grip the test specimen by means of suitable jaws.

**3.3 commercial moisture regain:** Arbitrary value formally adopted as the moisture regain to be used with the oven-dry mass when calculating linear density.

**3.4 elongation:** Ratio of extension of a test specimen to its initial length, expressed as a percentage.

**3.5 elongation at break:** Elongation of a test specimen at the breaking force.

**3.6 extension:** Increase in length of a test specimen produced by a tensile force, expressed in units of length.

**3.7 filament:** Fibre of very great length, considered as continuous.

**3.8 filament yarn:** Yarn composed of one or more filaments, that run essentially the whole length of the yarn.

NOTE 1: Yarns of one or more filaments are referred to as monofilament or multifilament respectively.

NOTE 2: Filament yarns can have the following morphologies: flat, interlaced, twisted, twistless, textured or combinations of these.

**3.9 folded yarn:** Yarn in which two or more single yarns are combined by a single twisting operation.

**3.10 breaking force:** Maximum force applied to a test specimen during a tensile test carried to rupture.

**3.11 force at specified elongation:** Tensile force associated with a specified elongation on the force - elongation curve.

**3.12 gauge length:** Distance between the two effective clamping points of a testing device.

NOTE: The effective clamping points of jaws can be checked by clamping a test specimen under the defined pretension with carbon copy paper to produce a gripping pattern on the test specimen and/or faces.

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