International Standard

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# Textiles — Synthetic filament yarns — Test methods for crimp properties of textured yarns

*Textiles — Fils de filaments synthétiques — Méthodes d'essai des propriétés de frisure des fils texturés*

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# Foreword

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

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# Textiles — Synthetic filament yarns — Test methods for crimp properties of textured yarns

## 1 Scope

This document specifies a test method for crimp properties of synthetic textured filament yarns.

Two treatment methods for crimp development are provided:

— Method A: Hot air method, and

— Method B: Hot water method.

## 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 3534-1, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 10132, *Textiles — Textured filament yarn — Definitions*



## 3 Terms and definitions



For the purposes of this document, the terms and definitions given in ISO 10132 and the following 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/ui

— IEC Electropedia: available at https://www.electropedia.org/

**3.1**
**crimp modulus**
ratio of difference between the straightened length ($L_g$) and the length ($L_f$) of the yarn under a low tension, to the straightened length ($L_g$), as to characterize the elongation behaviour of a textured yarn in the range of crimp elasticity

Note 1 to entry: It is expressed as a percentage.

## 4 Principle

Textured filament yarns have a certain crimp trend. By certain methods, the crimp is gradually revealed. The variations in lengths, measured in crimped state and in straightened state, are used to calculate crimp contraction and other parameters, as to characterise crimp properties of textured filament yarns. The test specimen is in the form of a skein or a simple loop.

# 5 Reagents

## 5.1 Aqueous solution

If crimp development Method B (see 10.1.2) is selected, distilled water or grade 3 water in accordance with ISO 3696 shall be used, to which a non-ionic surfactant to a concentration of 0,1 g/l has been added. Different concentrations of non-ionic surfactant may be allowed on agreement between the interested parties.

# 6 Apparatus

## 6.1 Skein winding reel

a) Reel, with a circumference of (1 000 ± 2,5) mm, driven either automatically or manually;

b) Traversing mechanism to avert overlapping while a number of skeins being wound at the same time;

c) Tensioning device, maintaining the specified tension to an accuracy of ±10 %;

d) Device to count the turns of the reel, preferably warning or stopping winding automatically, just prior to the specified number of reel revolutions;

e) Suitable mechanism to reduce the reel circumference for easy removal of the skein.

## 6.2 Test specimen holder

a) Frame, with a row of hooks separately on the upper and lower ends, for hanging test specimens vertically (see Figure 1). In order to prevent slipping inside the knotted ends, especially for coarse yarn test specimens, the upper hooks possibly to be replaced by a clamping mechanism, while every test specimen consisting of a simple loop in "U" shape, as to eliminate the need for knot;

b) Upper hooks or clamps fixed on the frame;

c) Lower hooks subjected to applied tension, moving without friction along the wires on both sides to avoid test specimens twisting;

d) Over 600 mm in height, with test specimens adequately spaced apart so as not to touch each other.