INTERNATIONAL STANDARD

ISO 11567

Second edition
2018-08

Corrected version
2020-02

Carbon fibre — Determination of filament diameter and cross-sectional area

Fibres de carbone — Détermination du diamètre et de l'aire de la section transversale des filaments

Reference number
ISO 11567:2018(E)

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Published in Switzerland

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Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Principle ... **1**

5 Test specimens ... **2**
5.1 General ... 2
5.2 Method A ... 2
5.3 Methods B and D ... 2
5.4 Method C ... 2
5.5 Method E ... 2

6 Method A: Determination of the diameter by calculation ... **2**

7 Method B: Determination of filament diameter by optical microscopy ... **3**
7.1 Principle ... 3
7.2 Apparatus ... 3
7.3 Calibration of the microscope ... 4
7.4 Preparation of the test specimen ... 4
7.5 Procedure ... 5
7.6 Expression of results ... 5

8 Method C: Determination of the diameter and cross-sectional area of transversely cut filaments by microscopy ... **5**
8.1 Principle ... 5
8.2 Apparatus ... 5
8.3 Preparation of test specimen ... 6
8.4 Procedure ... 6
8.4.1 General ... 6
8.4.2 Optical microscopic examination ... 6
8.4.3 Scanning electron microscopy ... 6
8.5 Measurement of the diameter ... 7
8.5.1 Filaments of circular cross-section ... 7
8.5.2 Filaments of non-circular cross-section ... 7

9 Method D: Determination of the diameter by laser diffractometry ... **7**
9.1 Principle ... 7
9.2 Apparatus ... 7
9.3 Preparation of test specimen ... 8
9.4 Procedure ... 8
9.5 Expression of results ... 8

10 Method E: Determination of filament diameter by scanning electron microscopy ... **8**
10.1 Principle ... 8
10.2 Apparatus ... 8
10.3 Procedure ... 9

11 Precision ... **9**

12 Test report ... **9**

Annex A (informative) **Suggested method for the preparation of test specimens for method C** ... **10**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 11567:1995), which has been technically revised.

The main changes compared to the previous edition are as follows.

a) Method E, Determination of the diameter by scanning electron microscopy, has been added.

b) The number of the test specimens in method A, method B, method C and method D has been identified.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This corrected version of ISO 11567:2018 incorporates the following corrections:

— Formula (1) in Clause 6 has been corrected.

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Carbon fibre — Determination of filament diameter and cross-sectional area

1 Scope

This document specifies five test methods used for the determination of the diameter and cross-sectional area of single carbon fibre filaments.

The shape of the cross-section of the filaments from different suppliers can vary significantly. The term "diameter" used in this document applies to all cases, from a "true" diameter, where the filament is exactly circular in cross-section, to an "apparent" diameter where the filament is not circular.

The methods proposed are not necessarily directly applicable to all types of filament. The product specification determines the method to be used. If there is no specification, the selection of the appropriate method is a matter of judgement. The details given here are considered to be sufficiently precise to enable this choice to be made.

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 1888:2006, *Textile glass — Staple fibres or filaments — Determination of average diameter*

ISO 1889, *Reinforcement yarns — Determination of linear density*

ISO 10119, *Carbon fibre — Determination of density*

ISO 11566, *Carbon fibre — Determination of the tensile properties of single-filament specimens*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Principle

Five methods are proposed for the determination of the diameter and cross-sectional area of carbon fibre filaments:

— Method A:

Determination of the diameter by calculation.

— Method B:

Determination of the diameter by optical microscopy.

— Method C:

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