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Continuous-fibre-reinforced plastic composites - Pultruded unidirectional rods - Determination of tensile properties in parallel to the fibre direction

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Continuous-fibre-reinforced plastic composites - Pultruded unidirectional rods - Determination of tensile properties in parallel to the fibre direction

Composites plastiques renforcés de fibres continues - Joncs unidirectionnels pultrudés - Détermination des propriétés en traction parallèlement à la direction des fibres

Kontinuierliche faserverstärkte Kunststoffverbunde - Gezogene unidirektionale Stäbe - Bestimmung der Zugeigenschaften parallel zur Faserrichtung

This European Standard was approved by CEN on 4 June 2018.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 17129:2018) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by May 2019, and conflicting national standards shall be withdrawn at the latest by May 2019.

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Introduction

The method described in EN ISO 527-5, *Plastics — Determination of tensile properties — Part 5: Test conditions for unidirectional fibre-reinforced plastic composites*, is not applicable for unidirectional pultruded rods for the following reasons:

a) a pultruded rod is submitted to internal residual tensile stresses which affect its tensile properties. To determine the true performance of a pultruded rod, it is necessary to perform the tensile tests on the entire rod. Alternative solutions such as dumb-bell shaped specimens are not appropriate;

b) cylindrical test specimens are not described in EN ISO 527-5.

1 Scope

This document specifies a method for determining the tensile properties of pultruded, unidirectional rods made from continuous fibre-reinforced plastic composites, in parallel to fibre direction.

It is applicable to pultruded rods which diameters are preferably ranging from 3 mm to 20 mm.

This method is suitable for use with continuous-fibre-reinforced plastic composites made from carbon fibres and glass fibres.

This method is suitable for use with all polymer matrix systems reinforced with unidirectional fibres having a cylindrical shape.

This method is not intended to be used for testing specimens such as tubes or yarns already covered by other test methods.

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.

EN ISO 527-1:2012, *Plastics — Determination of tensile properties — Part 1: General principles (ISO 527-1:2012)*

EN ISO 291, *Plastics — Standard atmospheres for conditioning and testing (ISO 291)*

EN ISO 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics (ISO 3611)*

EN ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system (ISO 7500-1:2018)*

EN ISO 9513:2012, *Metallic materials — Calibration of extensometer systems used in uniaxial testing (ISO 9513:2012)*