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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 41762.2-2022

Fibre-reinforced plastic composites - Determination of laminate through-thickness properties - Part 2: Determination of the elastic modulus, the strength and the Weibull size effects by flexural test of unidirectional laminate, for carbon-fibre based syst

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is the second part of GB/T 41762 "Determination of the properties of fiber-reinforced plastic composite laminates in the thickness direction".

GB/T 41762 has published the following parts.

--- Part 2. Determination of elastic modulus, strength and Weibull size effect of carbon fiber unidirectional laminates by bending test.

This document is identical to ISO 20975-2:2018 "Determination of through-thickness properties of fiber-reinforced plastic composite laminates - Part 2

Part. Bending Test Determination of Elastic Modulus, Strength and Weibull Size Effect of Carbon Fiber Unidirectional Laminates.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

With the continuous expansion of the application field of fiber-reinforced plastic composites, material R&D and structural designers need to know more about fiber-reinforced plastics.

The thickness-direction properties of composite materials are designed with test methods and data are accurately evaluated to ensure their safety in use. GB/T 41762 is for

Developed to meet the needs of evaluating the through-thickness properties of fiber-reinforced plastic composite laminates, it is proposed to consist of two parts.

--- Part 1. Direct tensile and compression tests;

--- Part 2.Determination of elastic modulus, strength and Weibull size effect of carbon fiber unidirectional laminates by bending test.

Both parts can evaluate through-thickness properties, but the test methods are different, part 1 uses tensile and compression test methods, part 2

Use the bending test method.

This document provides a three-point bending test method to determine the thickness direction of carbon fiber reinforced plastic composite unidirectional laminates

performance.

Fiber reinforced plastic composite laminate thickness

Determination of directional properties - Part 2.Bending test

Determination of elastic modulus of carbon fiber unidirectional laminates,

Intensity and Weibull Size Effects

1 Scope

This document describes the determination of through-thickness (out-of-plane) tensile strength, tensile rupture

Flexural Test Method for Bad Strain and Tensile Modulus.

This document applies to carbon fiber reinforced plastic composite unidirectional (UD-CFRP) laminates. In addition, due to the existence of tensile strength in the thickness direction

In the size effect, the calculation of the effective volume is also described.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

Note. GB/T 2918-2018 Standard Environment for Conditioning and Testing of Plastic Specimens (ISO 291.2008, MOD)

ISO 1268-1 Fiber-reinforced plastics test panels preparation method - Part 1.General (Fibre-reinforcedplastics-

Note. GB/T 27797.1-2011 Preparation Method of Fiber Reinforced Plastic Test Plate Part

1.General (ISO 1268-1.2001, IDT)

ISO 1268-4 Methods for the preparation of fiber-reinforced plastics test panels - Part

4.Prepreg molding (Fibre-reinforced plastics)

Note. GB/T 27797.4-2013 Preparation method of fiber reinforced plastics test panels - Part

4.Prepreg molding (ISO 1268-4.2005, IDT)

ISO 5893 Specification for Rubber and Plastics Test Equipment Tensile, Bend and Compression Type (Constant Speed Drive) [Rubberandplastics]

Note. GB/T 17200-2008 Rubber and plastic tensile, compression and bending testing machine (constant speed drive) technical specification (ISO 5893.2002, IDT)

ISO 20501 Fine ceramics (advanced ceramics, advanced technical ceramics) Weibull statistics of strength data [Fineceramics (ad-

Note. GB/T 40005-2021 Weibull Statistical Analysis Method for Strength Data of Fine Ceramics (ISO 20501.2019, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

ISO and IEC maintain terminology databases for standardization at the following addresses.