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

GB/T 44307-2024

**Carbon-fibre-reinforced composites - Determination of fibre
weight content - Thermogravimetry(TG)**

碳纤维增强塑料 纤维质量含量的测定 热重分析法 (TG)

(English Translation)

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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 for standardization documents" Drafting.

This document is equivalent to ISO 22821:2021 "Determination of fiber mass content of carbon fiber reinforced plastics by thermogravimetric analysis (TG)".

The following editorial changes were made to this document.

In order to coordinate with the existing standards, the name of the standard was changed to "Determination of fiber mass content of carbon fiber reinforced plastics - Thermogravimetric analysis Law (TG)".

1 Scope

This document describes a method for determining the fiber mass content of carbon fiber reinforced composites by thermogravimetric analysis.

This document applies to carbon fiber prepregs and carbon fiber reinforced plastics.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies.

in this document.

ISO 291 Plastics - Standard atmospheres for conditioning and testing (Note: GB/T 2918-2018 Standard environment for conditioning and testing of plastic specimens (ISO 291:2008, MOD))

3 Terms and definitions

The following terms and definitions apply to this document.

Fiber weight content the ratio of fiber mass to total mass in a fiber composite material.

Note: Also known as fiber content, expressed as a percentage.

4 Principle

In a known gas environment, the weighed sample is heated according to a preset program.

The sample was initially pyrolyzed in an inert gas environment (nitrogen) and then burned in an oxidizing gas.

Generally speaking, reactions that produce mass changes include decomposition, oxidation, or volatilization.

Plot the mass loss as a thermogravimetric function of temperature to quantify the carbon fiber content of a prepreg or composite.

5.1 Nitrogen

The purity is not less than 99.995% (mass fraction), the oxygen content is less than 10 mg/kg (ppm), and the hydrocarbon content is less than 1.5 mg/kg (ppm).