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Replacing GB/T 1464-2005

Test Method for Density of Sandwich Construction or Cores

夹层结构或芯子密度试验方法

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Table of Contents

Foreword	3
1 Scope.....	5
2 Normative References.....	5
3 Terms and Definitions.....	5
4 Test Principle.....	5
5 Test Equipment	5
6 Specimen.....	6
7 Test Conditions and Conditioning.....	6
8 Test Procedures	7
9 Test Results and Treatment	7
10 Test Report	8

Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document serves as a replacement for GB/T 1464-2005 *Test Method for Density of Sandwich Construction or Cores*. In comparison with GB/T 1464-2005, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

- a) The Scope is modified (see Chapter 1; Chapter 1 of Version 2005);
- b) The definition of the geometrical method is modified (see 3.1; see 3.2 of Version 2005);
- c) The terms and definitions of density, sandwich construction density and core density are deleted (see 3.1, 3.3 and 3.4 of Version 2005);
- d) The accuracy of the oven is modified (see 5.1; 5.1 of Version 2005);
- e) The requirements for specimen preparation are added (see 6.2);
- f) The test conditions and conditioning are modified (see 7.1 and 7.2; 7.1 and 7.2 of Version 2005);
- g) The calculation formulas for sandwich construction density and core density are merged (see 9.1; 9.1 and 9.2 of Version 2005);
- h) The content of test report is modified (see Chapter 10; Chapter 11 of Version 2005).

Please note that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by China Building Materials Federation.

This document shall be under the jurisdiction of National Technical Committee on Fiber Reinforced Plastics of Standardization Administration of China (SAC/TC 39).

The drafting organizations of this document: Shanghai FRP Research Institute Co., Ltd.; Shanghai SHFRP Testing Co., Ltd.; Jiangsu Goldwind Technology Co., Ltd.; Zhejiang NMG Composites Co., Ltd.; Weihai VISIGHT New Materials Technology Co., Ltd.; Shanghai Electric Wind Power Group Co., Ltd.; Ming Yang Smart Energy Group Ltd.; Jilin Chongtong Chengfei New Material Co., Ltd.; Hunan Xingxin Aerospace New Materials Co., Ltd.; Nantong Gubang Fiberglass Products Co., Ltd.; AVIC Touchstone Testing Innovation (Dachang) Co., Ltd.; Shanghai Warwick Certification Co., Ltd.; Beijing FRP Institute Testing Center Co., Ltd.; Beijing FRP Research Institute Co., Ltd.

Test Method for Density of Sandwich Construction or Cores

1 Scope

This document specifies the test principle, test equipment, specimen, test conditions and conditioning, test procedures, test results and treatment, and test report for the density of sandwich construction or cores.

This document is applicable to the determination of the density of highly absorbent or porous sandwich construction and various cores. Discontinuous sandwich construction or cores shall refer to this document in implementation.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 1446 Fiber-reinforced Plastics Composites - The General Rules for Determination of Properties

GB/T 3961 Terms for Fiber Reinforced Plastics

3 Terms and Definitions

The terms and definitions defined in GB/T 3961 and the following are applicable to this document.

3.1 geometrical method

A method that takes a regular geometric body as a specimen and calculates the specimen volume by measuring the specimen size.

4 Test Principle

Adopt the geometrical method to calculate the specimen volume. Divide the specimen mass by the specimen volume to obtain the specimen density.

5 Test Equipment

5.1 Oven: with an accuracy of 2 °C.

5.2 Dryer.

5.3 Balance: with an accuracy of 0.01 g.

5.4 Vernier caliper or other measuring tools: with an accuracy of 0.01 mm.

6 Specimen

6.1 Specimen Size

6.1.1 The upper and lower surfaces of the specimen are square or circular, and the specimen thickness is the same as the thickness of the sandwich construction or cores.

6.1.2 For continuous cores, such as: foam plastics and balsa wood, etc., the side length or diameter of the specimen should be 60 mm.

6.1.3 For honeycomb, corrugated and other lattice cores, the side length or diameter of the specimen should be 60 mm, or include at least 4 complete lattices.

6.1.4 When the thickness of the sandwich construction or core product has not been determined, the recommended core thickness is 15 mm, and the recommended panel thickness is 0.3 mm ~ 1.0 mm.

6.2 Specimen Preparation

6.2.1 Specimen processing shall comply with the provisions of GB/T 1446.

6.2.2 Adjacent surfaces of the specimen shall be perpendicular to each other. The parallelism tolerance of the upper and lower surfaces of the specimen shall not exceed 0.10 mm, and the perpendicularity tolerance of the side surface and the upper and lower surfaces shall not be greater than 0.20 mm.

6.3 Specimen Quantity

At least 5 valid specimens.

7 Test Conditions and Conditioning

7.1 Test Conditions

Standard laboratory environmental conditions: temperature is $(23 \pm 2) ^\circ\text{C}$, relative humidity is $(50 \pm 10)\%$.

7.2 Conditioning

7.2.1 The specimen shall be conditioned under one of the following conditions:

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