ICS 59.100.10
CCS Q 36

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 25042-2024

Replacing GB/T 25042-2010

Glass fibre membrane material for membrane structures

膜结构用玻璃纤维膜材料

Issued on: October 26, 2024 **Implemented on: May 1, 2025**

Issued by: State Administration for Market Regulation;
Standardization Administration of China

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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 replaces GB/T 25042-2010 "Glass Fiber Architectural Membrane Materials". Compared with GB/T 25042-2010, except for the structural adjustment and In addition to editorial changes, the main technical changes are as follows:

a) The scope has been changed (see Chapter 1, Chapter 1 of the.2010 edition);

b) Added product categories, basic components and intended uses (see 4.1,

4.1 of the.2010 edition);

c) The product code has been changed (see 4.2,

4.2 of the.2010 edition);

d) Added product specifications (see Chapter 5);

e) Added raw materials (see Chapter 6);

f) Added specific requirements for outer membrane, inner membrane and mesh membrane (see 7.2,

g) Added fiber diameter, whiteness, color difference, fade resistance, tensile strength standard value, high temperature tensile strength, wet tensile strength, flexural strength Post-tensile strength, coating peel strength, visible light transmittance and visible light reflectance, air permeability, fatigue resistance, tensile creep, Requirements and test methods for wear resistance, bending resistance, low temperature bending resistance, UV aging resistance, weldability and engineering elastic constants Law (see Chapter 7, Chapter 8, Appendix C and Appendix D);

h) Changed the requirements and test methods for appearance, mass per unit area, tear strength and burning performance level (see 7.1.1, 7.1.3, 7.2.2, 7.2.10, 7.3.2, 7.3.6, 7.4.6, 8.1, 8.3, 8.7,

8.17 and Appendix B, 5.1.1, 5.1.5,

5.1.9 of the.2010 edition, 5.2, 6.1, 6.5, 6.9,

1 Scope

China's national product standard for the glass fibre membrane material used in tensile membrane structures. It specifies the classification, the requirements, the test methods, the inspection rules and the marking, packaging, transport and storage of glass fibre fabric coated with polytetrafluoroethylene or similar for use as a structural membrane. A membrane structure carries load in tension only: the membrane is the roof, the ceiling, the weatherproofing and the structure at once, held in double curvature by cables and masts, and the fabric is therefore a structural material whose failure is the collapse of the building. Two families dominate, and this standard covers the more demanding. A polyester fabric with PVC coating is cheaper and easier to fabricate but is combustible, creeps under sustained load and yellows; glass fibre coated with PTFE does not burn, does not creep measurably, is chemically inert and self-cleaning, and lasts thirty years or more - which is why it is used for stadium roofs, airport terminals and permanent architecture. Its difficulty is handling. Glass fibre is strong in tension and has almost no resistance to bending: a fold in a coated glass membrane breaks the filaments along the crease and creates a permanent line of weakness, so the material cannot be folded at any stage of manufacture, shipping or erection - it is rolled, and a crease is a rejection. So the standard specifies the tensile strength in both directions and the tear strength, which is what a membrane actually fails by since a small cut propagates under tension; the coating adhesion and its thickness; the fire performance; the light transmission and reflectance, since these roofs are daylighting elements; the resistance to weathering, and the creep and biaxial behaviour that the structural design depends on. Issued on 26 October 2024 and in force since 1 May 2025, it replaces GB/T 25042-2010.

This document specifies the classification code, product specifications, raw materials, requirements, Test methods, inspection rules, marking, packaging, transportation and storage. This document is applicable to glass fiber fabrics with polytetrafluoroethylene (PTFE) or polyvinylidene fluoride (PVDF) coated on the surface. Glass fiber reinforced plastics are mainly used for permanent and non-permanent membrane structures, facade decoration of buildings and structures, interior decoration ceilings and interior wall decoration. Fiber coated products.

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 to This document.

GB/T 191 Pictorial symbols for packaging, storage and transportation

GB/T 2680-2021 Architectural glass visible light transmittance, direct sunlight transmittance, total solar energy transmittance, ultraviolet light transmittance Comparison and determination of relevant window glass parameters

GB/T 5453 Textiles - Determination of air permeability of fabrics

GB/T 7689.5 Test methods for woven fabrics of reinforced materials - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 18374 and the following apply to this document.

3.1 The lowest tensile strength of the material under normal conditions is calculated based on the measured data using statistical methods. Test results below this value

5 Determination of fiber diameter of glass fibers

GB/T 7974 Paper, paperboard and pulp - Determination of blue light diffuse reflectance D65 brightness (diffuse/vertical method, outdoor daylight conditions)

GB 8624-2012 Classification of combustion performance of building materials and products

GB/T 9914.3 Test methods for reinforced products Part