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

GB/T 24721.1-2023

**Glass fiber reinforced plastic product for highway - Part 1:
General rule**

公路用玻璃纤维增强塑料产品 第1部分：通则

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Standardization Administration of the PRC**

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Foreword

This document was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 July 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 24721.1-2023 is the common part of the series on glass fibre reinforced plastic products used along highways, and it holds what the product parts would otherwise each have to repeat. It classifies the products by moulding process, moulded and pressed laminates among them, then sets technical requirements that begin with the raw materials, including the performance indices the unsaturated polyester resin has to meet, before moving on to the finished product. The test methods clause is the longest: it fixes specimen conditioning and the laboratory environment first, so that results from two laboratories can be compared at all, and then the individual tests. Inspection rules decide how a lot is sampled and when it is accepted or rejected, and a closing clause covers marking, packaging, transport and storage. Roadside items of this kind live outdoors for years under sun, rain and temperature swing, and a resin or a laminate that was never tested under stated conditions fails quietly, well after the road is open and long after the invoice is paid. Needed by manufacturers of highway GFRP products, by the design and procurement staff who write the tender, and by the laboratories that test to the product parts of the series.

This document specifies the classification, technical requirements, test methods, inspection

rules, as well as marking, packaging, transportation and storage requirements for glass fiber

reinforced plastic product for highway.

This document is applicable to the production, inspection and usage of glass fiber reinforced

plastic product for highway (hereinafter referred to as "glass fiber reinforced plastics").

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 Generals for Determination of Properties

GB/T 1447 Fiber-reinforced Plastics Composites - Determination of Tensile Properties

GB/T 1448 Fiber-reinforced Plastics Composites - Determination of Compressive Properties

GB/T 1449 Fiber-reinforced Plastics Composites - Determination of Flexural Properties

GB/T 1451 Fiber-reinforced Plastics Composites - Determination of Charpy Impact Properties

GB/T 1463 Test Methods for Density and Relative Density of Fiber Reinforced Plastics

GB/T 1634.3-2004 Plastics - Determination of Temperature of Deflection under Load - Part 3:

High-strength Thermosetting Laminates

GB/T 2408 Plastics - Determination of Burning Characteristics - Horizontal and Vertical Test

GB/T 2573 Test Method for Aging Properties of Glass Fiber Reinforced Plastics

GB/T 3854 Test Method for Hardness of Reinforced Plastics by means of a Barcol Impresser

GB/T 3857 Test Method for Chemical Resistance of Glass Fiber Reinforced Thermosetting

Plastics

GB/T 8237 Liquid Unsaturated Polyester Resin for Fiber Reinforced Plastics

GB/T 8627 Test Method for Density of Smoke from the Burning or Decomposition of Building

Materials

GB/T 8924 Test Method for Flammability Characteristics of Fiber Reinforced Plastics - Oxygen

Index Method

GB/T 9286 Paints and Varnishes - Cross-cut Test

GB/T 16422.2 Plastics - Methods of Exposure to Laboratory Light Sources - Part 2: Xenon-arc

Lamps

GB/T 16422.3 Plastics - Methods of Exposure to Laboratory Light Sources - Part 3: Fluorescent

UV Lamps

GB/T 17470 Glass Fiber Mats - Chopped Strand and Continuous Filament Mats

GB/T 18369 Glass Fiber Roving

GB/T 18370 Glass Fiber Woven Roving

GB/T 18371 Glass Filament Yarn

GB/T 20428 Granite Surface Plates

GB/T 22040-2008 Technical Requirements and Determination of Weathering Quality for Plastics of Highway Furnitures

JT/T 495 Sampling Methods for Highway Safety Facilities Quality Inspection

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 Product Classification

4.1 In accordance with different molding processes, glass fiber reinforced plastics products are

divided into:

- a) Molded and pressed glass fiber reinforced plastics;
- b) Winded glass fiber reinforced plastics;
- c) Pultruded glass fiber reinforced plastics;
- d) Rolled glass fiber reinforced plastics;
- e) Molded glass fiber reinforced plastics;
- f) Hand lay-up glass fiber reinforced plastics;
- g) Other formed glass fiber reinforced plastics.

4.2 In accordance with different flame-retardant properties, glass fiber reinforced plastics products are divided into:

- a) Level-1 flame-retardant properties, which is used in environments with high flame-retardant requirements, that is, closed or semi-closed structures with a continuous length of not less than 1,000 m;
- b) Level-2 flame-retardant properties, which is used in environments with relatively high flame-retardant requirements, that is, closed or semi-closed structures with a continuous length of less than 1,000 m;
- c) Level-3 flame-retardant properties, which is used in environments with general flame-retardant requirements, that is, full open environments.

4.3 In accordance with different weather resistance properties, glass fiber reinforced plastics

products are divided into:

- a) Common weather-resistant type, which is used in environments without special strong ultraviolet light exposure;
- b) Anti-ultraviolet weather-resistant type, which is the type of products exposed to normal sunlight environment and need to be painted on the outer wall.

5 Technical Requirements

5.1 Raw Materials

5.1.1 Resin

The performance index of unsaturated polyester resin shall comply with the requirements of