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

LY/T 3199-2020

**Bamboo plastic composite profile reinforced with aluminum
alloy**

(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed and managed by the National Bamboo and Rattan Standardization Technical Committee (SAC/TC263).

Drafting organizations of this standard. Beijing Forestry University, Guangde Forestry Bureau, Anhui Sentai Wood Plastic Group Co., Ltd., International Bamboo and Rattan Center.

1 Scope

This standard specifies the terms and definitions, product classification, requirements, inspection methods, inspection rules, and standards for aluminum alloy reinforced bamboo-plastic composite profiles.

Logging, packaging, transportation and storage.

This standard is applicable to pellets with bamboo and thermoplastics as the main components as raw materials, aluminum alloy as the skeleton, and co-extrusion process.

The profiles are used for flooring, indoor and outdoor decoration, etc.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated

references, the latest version (including all amendments) applies to this document.

GB/T 228.1-2010 Metallic materials tensile test Part 1: Room temperature test method
GB/T 2411-2008 Plastics and hard rubber use a durometer to determine the indentation hardness (Shore hardness) GB/T 2828.1-2012 Sampling inspection procedure by attributes Part 1: Batch inspection sampling plan retrieved by acceptance quality limit (AQL) GB/T 8424.3 Textile color fastness test color difference calculation GB/T 15102-2017 Impregnated adhesive film paper facing artificial board GB/T 17657-2013 Test method for physical and chemical properties of wood-based panels and facing wood-based panels GB/T 18259-2018 Artificial board and its surface decoration terms GB/T 19367-2009 Determination of the size of wood-based panels GB/T 22412-2016 Aluminum-plastic composite panel for general decoration GB/T 24508-2009 Wood Plastic Flooring

3 Terms and definitions

The following terms and definitions defined in GB/T 18259-2018 apply to this document.

A profile made of bamboo and thermoplastics as the main components of pellets, aluminum alloy as the skeleton, and co-extrusion process.

Defect

Defects such as local unevenness and foreign matter on the surface of the profile.

4 Categories

4.1

According to the profile cross section.

- a) Solid aluminum alloy reinforced bamboo-plastic composite profile;
- b) Hollow aluminum alloy reinforced bamboo-plastic composite profile.

See Appendix A.

4.2

According to the use environment.

- a) Aluminum alloy reinforced bamboo-plastic composite profile for indoor use;
- b) Aluminum alloy reinforced bamboo-plastic composite profile for outdoor use.

4.3

By purpose.

- a) Aluminum alloy reinforced bamboo-plastic composite profile for decoration;
- b) Aluminum alloy reinforced bamboo-plastic composite profile for floor.

5.1 Appearance quality

Should meet the requirements of Table 1.

5.2 Specifications and deviations

The shape and size are negotiated by both parties. The size deviation should meet the requirements of Table 2.

5.3 Physical and mechanical properties

Should meet the requirements of Table 3.

9 Coefficient of linear thermal expansion

6 Inspection method

6.1 Preparation of test pieces Randomly select 3 samples from the product, and prepare test pieces according to Table 4 and Figures 1 to 3. Place the test piece at $(20\pm 2)^{\circ}\text{C}$, relative humidity $(50\pm 5)\%$. Condition the treatment for 48 h under the condition of humidity $(50\pm 5)\%$.

6.2 Appearance quality

6.2.1 Cracks, aluminum alloy exposure, bubbles, defects, scratches Carry out in accordance with the provisions of 6.1 of GB/T 15102-2017.

6.2.2 Color difference According to the provisions of GB/T 8424.3.

6.3 Dimensions

6.3.1 Length, width

Carry out in accordance with the provisions of GB/T 19367-2009 in 8.2.

6.3.2 Thickness

According to the provisions of GB/T 19367-2009 in 8.1.

6.3.3 Warpage

According to the provisions of 6.5.5 in GB/T 22412-2016.

6.3.4 Edge straightness According to the provisions of 6.5.4 in GB/T 22412-2016.

6.3.5 Diagonal difference According to the provisions of 6.5.3 in GB/T 22412-2016.

6.4 Physical and mechanical properties

6.4.1 Bending failure load

6.4.1.1 Principle

Determine the ability of the specimen to withstand bending loads.

6.4.1.2 Instruments and tools Universal testing machine, accuracy 1N; the length of the support of the testing machine is longer than the width of the sample, and the diameter is (15 ± 0.5) mm. Indenter, and support Same length and diameter (30 ± 0.5) mm. Deformation measuring equipment, testing the deformation at the center of the test piece span, with an accuracy of 0.1mm. Force measurement system, the accuracy is 1%. Micrometer, graduation value 0.01mm. Vernier caliper, the graduation value is 0.1mm.

6.4.1.3 Test procedure According to the provisions of 6.5.2.3 of GB/T 24508-2009, the span between the two supports is 500mm.

6.4.1.4 Results and presentation Record the maximum failure load of each specimen to the nearest 1N. The tested bending failure load is the average of the bending failure load of the six specimens.

Mean value, accurate to 1N.

6.4.2 Flexural strength and flexural modulus

6.4.2.1 Principle

The bending strength is to determine the ratio of the bending moment and the bending section modulus of the specimen under the maximum load. The bending modulus is to determine the the ratio of stress to strain caused by bending load within the limits of the performance.

6.4.2.2 Instruments and tools Universal testing machine, accuracy 1N; the length of the support of the testing machine is longer than the width of the sample, and the diameter is (15 ± 0.5) mm. Indenter, and support Same length and diameter (30 ± 0.5) mm. Deformation measuring equipment, testing the deformation at the center of the test piece span, with an accuracy of 0.1mm. Force measurement system, the accuracy is 1%. Micrometer, graduation value 0.01mm. Vernier caliper, the graduation value is 0.1mm.

6.4.2.3 Test procedure the test is carried out in accordance with 6.5.2.3 of GB/T 24508-2009, and the span between the two supports is 500mm.

6.4.2.4 Results and presentation the bending strength and bending elastic modulus are accurate to one decimal place. Flexural strength f Calculate according to formula (1).

6.4.3 Tensile strength and elastic modulus

6.4.3.1 Principle

The tensile strength determines the ratio of the maximum tensile load of the specimen to the cross-sectional area of the specimen. The elastic modulus is to determine the elastic limit range of the test piece in the material , The ratio of stress to strain produced by tensile load.