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Composite pultruded plates for wind turbine blades

风电叶片用纤维增强复合材料拉挤板材

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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. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by China Building Materials Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Fiber Reinforced Plastics (SAC/TC39). This document was drafted by: Tsinghua University, Jiangsu Aosheng Composite Materials Technology Co., Ltd., Sinoma Science & Technology Wind Power Blade Co., Ltd., Zhen Huazhi Research Institute (Zhejiang) Co., Ltd. of Shijiazhuang Group, Sany Heavy Energy Co., Ltd., Zhongfu Carbon Core Cable Technology Co., Ltd., Xinchuang Carbon Valley Group Co., Ltd., Zhuzhou Times New Materials Technology Co., Ltd., Guangdong Mingyang New Energy Materials Technology Co., Ltd., Beijing Glass Steel Institute Testing Center Co., Ltd., Chongqing Fengdu New Materials Co., Ltd., Taishan Fiberglass Co., Ltd., Goldwind Science & Technology Co., Ltd., Nanjing Nortech Composite Materials Equipment Manufacturing Co., Ltd., Henan Xunke New Materials Technology Co., Ltd., Meigu New Materials (Nantong) Co., Ltd., Beijing Glass Steel Institute Composite Materials Co., Ltd., Luoyang Kebosi New Materials Technology Co., Ltd., Daosheng Tianhe Materials Technology (Shanghai) Co., Ltd., Hui Boxin Materials Technology (Shanghai) Co., Ltd., Hebei Composite Materials Industry Research Institute Co., Ltd., Nanjing University of Technology, Zhejiang Hengyida Composite Materials Co., Ltd., Jilin Guoxing Composite Materials Co., Ltd., and China Huadian Science and Technology Group Co., Ltd. The main

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1 Scope

China's national standard for the composite pultruded plates used in wind turbine blades. Pultrusion has displaced hand layup for the spar caps of large blades, which are the members that carry the bending load and where most of the blade's carbon or glass fibre goes. The reason is straightforward: pulling fibre continuously through a resin bath and a heated die produces a plate with the fibres perfectly aligned, a high and consistent fibre volume fraction and almost no voids, at a rate a mould cannot match - and the blade is then built by stacking these plates. Blades have passed 100 metres, and at that length the spar cap's stiffness per unit weight determines whether the design closes at all. The standard covers the classification, coding and marking of the plates, the raw materials, the requirements, the test methods, and the inspection, marking, packaging, transport and storage provisions.

This document specifies the classification, code and marking, raw material and Materials, requirements, test methods, inspection rules, marking, packaging, transportation and storage. This document applies to composite pultruded sheets with glass fiber, carbon fiber, etc. as reinforcement materials used in wind turbine blades.

2 Normative references

The contents of the following documents constitute 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 1040.4 Determination of tensile properties of plastics Part

3 Determination of Melting and Crystallization Temperature and Enthalpy

GB/T 26752 Polyacrylonitrile-based carbon fiber

GB/T 28889 Test method for in-plane shear properties of composite materials

GB/T 28891 Determination of Mode I interlaminar fracture toughness GIC of unidirectional

reinforced materials of fiber reinforced plastic composites

4 Isotropic and orthotropic fiber reinforced composite materials Test conditions

GB/T 1040.5 Determination of tensile properties of plastics Part

5 Test conditions for unidirectional fiber reinforced composites

GB/T 1446 General principles for test methods for properties of fiber reinforced plastics

GB/T 1447 Test method for tensile properties of fiber reinforced plastics

GB/T 1462 Test method for water absorption of fiber reinforced plastics

GB/T 1463 Test method for density and relative density of fiber reinforced plastics

GB/T 2577 Test method for resin content of glass fiber reinforced plastics

GB/T 3820 Determination of thickness of textiles and textile products

GB/T 3855 Test method for resin content of carbon fiber reinforced plastics

GB/T 3917.2 Tear properties of textile fabrics - Part