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New textile materials - Datasheet of mechanical properties

纺织新材料 力学性能数据表

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Table of Contents

Foreword	I
Introduction	II
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Breaking tenacity in standard atmosphere	1
3.2 Breaking elongation in standard atmosphere	1
3.3 Initial modulus	1
3.4 Wet breaking tenacity	1
3.5 Wet breaking elongation	1
3.6 Relative wet tenacity	2
4 Table of mechanical property data	2

Foreword

This instructional document has been drafted in accordance with the rules given in GB/T 1.1-2009. This Guidance Document is proposed by China National Textile and Apparel Council. The guidance of technical documents by the National Textile Standardization Technical Committee (SAC/TC209) centralized. The drafting of the guidance of technical documents. Textile Industry Standardization Institute, Textile Industry Science and Technology Development Center, Yantai Taihe new material Materials Co., Ltd., Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Tianjin Sheng Biological Engineering Co., Ltd., Changshu Jinquan Weaving limited liability company, Hangzhou Cheung Shing high-strength fiber materials Co., Ltd., China Chemical Fiber Industry Association. The main drafters of this guidance document are Han Yuru, Xu Lu, Fei Fei, Li Deli, Wang Guojian, Ma Qianli, Li Dehong, Zhou Xinmin, Fan Haibin, Bao Jianfeng.

At present, aramid, polyphenylene sulfide fibers, ultra-high molecular weight polyethylene fibers, new polyester fibers, chitosan fibers, polylactic acid fiber and other high Fibers and new textile fibers developed rapidly, but mostly in the industrialization process, the basic data of a serious shortage of some books, information mentioned Part of the scattered data there is a big difference, and did not indicate the test method, is not comparable, can not meet the product development and application design Department of the material itself based on the performance data needs. The data of this instructional technical document

originated from the scientific research special item "Research on basic performance data of textile new material" Fruit, is collected on the basis of the measured value of the sample is given, there are some limitations. Unlike the existing product standards, this guidance document is not a specification of the performance of the final product and is not intended as a Determine whether the product is qualified basis. This guideline is for reference only. The suggestions and opinions on this technical document are directed to the standardization administration under the State Council Department reflected. Textile mechanical properties of new materials datasheet

1 Scope

This guiding technical document gives the basic mechanical property data of certain textile fibres: the breaking tenacity in the standard atmosphere, the wet breaking tenacity, the relative wet tenacity, the breaking elongation in the standard atmosphere, the wet breaking elongation and the initial modulus. This guiding technical document applies to ultra-high molecular weight polyethylene fibre, aramid 1414, aramid 1313, polyphenylene sulfide fibre, polyimide fibre, polytrimethylene terephthalate fibre, polybutylene terephthalate fibre, polylactic acid fibre, chitosan fibre and lyocell fibre.

This guideline gives some of the textile fiber dry fracture strength, wet strength, wet strength, wet breaking strength The basic data of the mechanical properties of elongation, wet elongation at break and initial modulus. This guideline is applicable to UHMWPE fibers, aramid 1414, aramid 1313, polyphenylene sulfide fibers, polyimides Fibers, polytrimethylene terephthalate fibers, polybutylene terephthalate fibers, polylactic acid fibers, chitosan fibers and Lyocell fibers.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document. Textile and textile materials - Performance and test terms - Part 1. Fibers and yarns

GB/T 6529 Textiles conditioning and testing standard atmosphere Chemical fiber staple fiber linear density test method Test method for tensile properties of

GB/T 14337 chemical fiber staple fibers Test method for tensile properties of high strength filament yarn

3 Terms and definitions

GB/T 3291.1 defined and the following terms and definitions apply to this document.

3.1 Drying breaking strength breakingtenacityinstandardatmosphere The ratio of the

measured breaking strength to the linear density of the material after conditioning in a standard atmosphere.

Note. Generally known as the breaking strength.

3.2 Dry elongation at breakage After conditioning in a standard atmosphere, the ratio of elongation at break measured to the initial length of the material is expressed as a percentage.

Note. Generally known as the elongation at break.

3.3 Initial modulus initialmodulus The slope of the material's stress-strain curve initially approaching the straight line. [GB/T 3291.3-1997, definition 2.90]

3.4 Wet breaking strength of wet breaking Under specified conditions, the ratio of the breaking strength to the linear density of the material as measured after soaking.

3.5 Wet breaking elongation at wetbreakingelongation Under specified conditions, the ratio of the elongation at break measured after soaking of the material to its initial length, expressed as a percentage.