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

GB/T 43014-2023

Polyimide short cut fibre

聚酰亚胺超短纤维

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1 Scope

GB/T 43014-2023 specifies polyimide short cut fibre. Polyimide is the fibre used where nothing else survives: it holds its strength above 300 degrees, resists flame without a halogenated additive, and is chemically inert, which puts it into high temperature filter bags for cement and power plant flue gas, into protective clothing, and into friction and insulation materials. In short cut form it is a raw material for papers, felts and composites rather than a textile, so what a buyer needs specified is the linear density, the length distribution and the diameter. The standard sets the product identification, the technical requirements, the test methods, the inspection rules and the marking, packaging, transport and storage provisions, with normative annexes on converting between linear density and equivalent diameter and on the test method for diameter deviation. It took effect on 1 April 2024.

This document specifies the product identification, technical requirements, inspection rules, marking, packaging, transportation and storage of polyimide short cut fibre, and describes the test methods. This document applies to polyimide short cut fibres with a nominal linear density of

0.89 dtex ~

3.33 dtex, an equivalent diameter of $8.87\ \mu\text{m} \sim 17.16\ \mu\text{m}$, and a cutting length less than 20 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 4146 (all parts), Textiles - Man-made fibres

GB/T 6503, Man-made fibres - Test method of moisture regain

GB/T 14334-2006, Sampling method for man-made staple fibres

GB/T 14335, Testing method for linear density of man-made staple fibres

GB/T 14337, Man-made fibre - Test method for tensile properties of staple fibre

GB/T 14339-2008, Testing method for defect of man-made staple fibres

GB/T 37631, Man-made fiber - Test method for thermal decomposition temperature FZ/T 50016, Testing method for flame retardant property of viscose staple fibers - Oxygen index

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 4146 (all parts), as well as the following, apply.

3.1 temperature at 5% thermogravimetry weight loss Temperature at which the mass of the sample loses 5% when thermogravimetric analysis is performed under the same conditions under programmed temperature control and a certain atmosphere.

3.2 equivalent diameter Diameter of the circular cross-section fiber corresponding to the same linear density fiber.

3.3 overlength fibre Staple fiber whose length is greater than 130% of the nominal length and less than 2 times of the nominal length.

3.4 over short fibre Fiber whose fiber length is less than 70% of the nominal length.

4 Product identification

4.1 Product specifications The specifications of polyimide short cut fibres are expressed in terms of fiber linear density (equivalent diameter) and cutting length. Among them, the unit of linear density is decitex (dtex), the unit of equivalent diameter is micron (μm), and the unit of cutting length is millimeter (mm). The equivalent diameter corresponding to the linear

density is calculated according to Appendix A. Example:

1.67 dtex (12.15 μm) x 6 mm.

4.2 Product identification Product identification shall include information such as product specifications, name or batch number.

5 Technical requirements

5.1 Product grading Products are divided into two grades: high-quality products and qualified products. Follow the provisions of GB/T 6503.

7 Inspection rules

7.1 Inspection classification Product inspection is divided into type inspection, ex-factory inspection and acceptance inspection. Type inspection shall be carried out when one of the following situations occurs:

- a) during normal production, type inspection shall be carried out on a regular basis;
- b) after formal production, if there are major changes in raw materials and processes that may affect the quality of the product;
- c) when the factory inspection result is significantly different from the previous type inspection;
- d) other times when type inspection is required.

7.2.1 Inspection items

7.2.1.1 Type inspection items are

5.2 and 5.3. Among them, Table 2 shows optional items, which are determined by negotiation between the supply and demand parties according to the content of the trade agreement;

5.3 is not an item for grade assessment.

7.2.1.2 The ex-factory inspection items are the items specified in 5.2, Table 1 and 5.3, among which

5.3 is not a grade assessment item.

7.2.2 Batching rules Periodic sampling is used within a certain range to form an inspection batch. A production batch can be composed of one inspection batch or several inspection batches.

7.2.3 Sampling regulations

7.2.3.1 Item 1 "Linear density deviation rate" and Item 3 "Breaking strength" in Table 1 as well as Item 1 "Oxygen index" in Table 2 are tested by taking fiber samples before cutting.

7.2.3.2 Item 2, Items 4 ~ 8 in Table 1 and Item 2 "Temperature at 5% thermogravimetry weight loss" in Table 2 shall be tested in accordance with the provisions of

6.3 in GB/T 14334-2006.

7.2.4 Determination rules

7.2.4.1 Compare the measured or calculated values of each performance item with the limit values of the performance item indicators in Table 1 and Table 2, and rate one by one. Use the lowest grade in the performance items to determine the grade of this batch of products.

7.2.4.2 The test data of each performance item is based on one time and shall not be tested again. If an abnormality occurs in the operation or instrument, after measures are taken, the tester shall take a portion from the original sample and retest it once, and the retest data shall prevail.

7.3 Acceptance inspection

7.3.1 General The buyer shall promptly check whether the outer packaging, quantity and quality of each batch of product packages are consistent with the manifest. Within three months after a batch of products arrives at the buyer, re-inspection can be submitted if there is any objection to the product quality. Re-inspection can be carried out by any party agreed by both parties. If necessary, an arbitration inspection agency can be requested to conduct sampling, inspection and arbitration in accordance with the requirements of this document.

7.3.2 Inspection items Same as 7.2.1.1.

7.3.3 Batching rules Batch according to the original production batch.

7.3.4 Sampling regulations Upon negotiation and agreement between the supply and demand parties, samples for the linear density deviation rate, breaking strength, and oxygen index items can be obtained from the samples retained by the manufacturer (the retained samples need to be retained for six months). The sampling of other test items shall be in accordance with

6.3 in GB/T 14334-2006. Packages that have been accidentally dampened, contaminated, scratched or have been opened during transportation shall not be taken.

7.3.5 Determination rules Rate according to 7.2.4.1. If it is higher than or equal to the original grade, judge it as compliant, and if it is lower than the original grade, judge it as non-compliant.