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NATIONAL STANDARD OF THE
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ICS 81.040.30

Q 35

GB/T 30985-2014

Quartz glass handle for optical fiber manufacture

光纤制造用石英玻璃把持棒

Issued on: July 24, 2014

Implemented on: March 01, 2015

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;**

Standardization Administration of PRC.

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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 by the China Building Materials Federation.

This standard shall be under the jurisdiction of the National Industrial Glass and Special Glass Standardization Technical Committee (SAC/TC 447).

Responsible drafting organizations of this standard: China Building Materials Inspection and Certification Group Co., Ltd., Beijing Jingelan Quartz Glass Co., Ltd., National Safety Glass and Quartz Glass Quality Supervision and Inspection Center.

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Quartz glass handle for optical fiber manufacture

1 Scope

This standard specifies the terms and definitions, technical requirements, test methods, inspection rules and marking, packaging, storage and transportation of quartz glass handle for optical fiber manufacture.

This standard applies to quartz glass rods used for holding or supporting in the fiber manufacturing process.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 3284 Analytical method of the chemical composition in the quartz glass

GB/T 4121 Test method for stability to thermal darkening of quartz glass

JC/T 597 Transparent quartz glass tubes for semiconductor

3 Terms and definitions

The terms and definitions as defined by JC/T 597 as well as the following terms and definitions apply to this document.

3.1

Scratch

The slender wear at the surface of quartz glass handle.

3.2

Contamination on surface

The dirty film, discoloration, splash, fingerprint, and other contaminants on the surface of quartz glass handle.

3.3

4.3.4 Stability of bubbles

Burn the quartz glass handle in the oxyhydrogen flame to a molten state. There shall be no swelled bubbles in the burning position.

4.3.5 Stress

The specimens are observed in a polarized stress meter, they are only allowed to show purple.

5 Test methods

5.1 Dimensional deviation

5.1.1 Measurement tools

The specification size of the quartz glass handle is measured by a vernier caliper which has a division value of not more than 0.02 mm; the length is measured by a length meter or other tools which have a division value of not more than 1 mm.

5.1.2 Diameter deviation and circularity tolerance

Measure the diameters of the two ends and the middle of the quartz glass handle; the number of measuring points on the same section is not less than 3. Take the maximum value from the 3 sets of data, minus the nominal dimension, to obtain the algebraic difference, which is the upper deviation of diameter. Use the minimum value to minus the nominal dimension to obtain the algebraic difference, which is the lower deviation of diameter. The maximum difference obtained by subtracting the minimum value from the maximum value of the same section is the circulatory tolerance.

5.1.3 Bending

As shown in Figure 1, fix both ends of the specimen in a precision V-shaped groove. Place a dial indicator which has a division value of not more than 0.01 mm in between them. The probe of the dial indicator shall be in contact with the surface of the quartz glass handle. Rotate the handle for one cycle. The ratio of the maximum reading of the dial indicator to the length of the handle is the bending of this handle. The bending may also be measured by other measuring tools of the equivalent precision.

Physical and chemical performance shall be judged by individual performance in accordance with the corresponding provisions of clause 4. When all physical and chemical properties are in compliance with the requirements, the physical and chemical properties of the batch are judged to be qualified. If one item does not meet the requirements, the physical and chemical properties of the batch are judged to be unqualified.

6.3.5.3 Comprehensive judgment

When the dimensional deviation, appearance quality, content of impurity element, flexural strength, thermal discoloration, stability of bubbles, stress all meet the requirements, the batch of products is judged to be qualified. If one item does not meet the requirements, the batch of products is judged as unqualified.

7 Marking, packaging, storage, transportation

7.1 Marking

Each packaging box shall be marked with the words or graphics such as “moisture-proof, upward-facing, glassware carefully handled” as well as the product name, product marking, date of manufacture, manufacturer name or trademark.

7.2 Packaging

Each handle shall be packaged separately, then placed in a packaging box. Cushioning spacers shall be placed in the packaging box around and above/below the handle. During packaging of product, it shall be accompanied with product certificate and exit-factory inspection report.

7.3 Storage

The product shall be placed in a dry room. It shall avoid stacking the products as much as possible.

7.4 Transportation

In the process of transportation and handling, pay attention to handling it with care. There shall be rain-proof measures.

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