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

GB/T 6344-2008

**Flexible cellular polymeric materials -- Determination of tensile
strength and elongation at break**

软质泡沫聚合材料 拉伸强度和断裂伸长率的测定

(English Translation)

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1 Scope

This Standard specifies a method for determining the strength and deformation properties of flexible cellular materials when a test piece is extended at a constant rate until it breaks.

This Standard applies to the testing of tensile strength and elongation at break of flexible cellular polymeric materials.

2 Normative references

The terms in the following documents become the terms of this Standard by reference to this Standard. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this standard. However, parties to agreements that are based on this Standard are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this

Standard.

GB/T 6342, Cellular plastics and rubbers - Determination of linear dimensions (GB/T 6342-1993, IDT ISO 1923:1981)

ISO 7500-1:2004, Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification of calibration of the force-measuring system

ISO 9513, Metallic materials - Calibration of extensometer systems used in uniaxial testing

ISO 23529, Rubber - General procedures for preparing and conditioning test pieces for physical test methods

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

tensile strength

27 °C ± 2 °C, (65 ± 5) % relative humidity.

5.4.3 In the case of quality-control tests, test pieces can be taken a shorter time (down to a minimum of 12 h) after manufacture and testing carried out after conditioning for a shorter period (down to a minimum of 6 h) in one of the atmospheres specified above.

6 Procedure

6.1

After conditioning as specified in 5.4, measure the thickness of the material at five evenly distributed points in the area from which the test pieces are to be cut. These measurements shall be made in accordance with GB 6342 (ISO 1923) and shall not vary from each other by more than ±2%. If desired, thickness measurements can be performed on cut test pieces, but test pieces whose thickness falls outside these limits shall be rejected.

6.2

Mark the gauge length on each test piece with two reference lines, using a marker with two parallel marking edges. Measure the distance between the inside edges of the lines to an accuracy of ±1% (these lines shall be 25 mm ~ 50 mm apart for type 1 test pieces and not more than 40 mm apart for type 1A test pieces).

6.3

Set the load-indicating device to zero and place a test piece in the grips of the tensile-testing machine, taking care to mount the test piece symmetrically so that the tension will be distributed uniformly over its cross-section. A preload stress of up to 0.1 kPa or a preload extension of up to 0.5% may be applied. When using an extensometer, zero it on completion of the preload. Start the machine at a jaw-separation rate of 500 mm/min

± 50 mm/min and record the maximum force (measured to ±1%) and the distance between the inside edges of the two reference lines (measured to ±1.25 mm) immediately prior to break of the test piece. Reject test pieces which break outside the gauge length, and continue testing until five satisfactory results are obtained. Sufficient material will have to be available to ensure that retesting can be carried out.

6.4

Carry out the test at the same temperature and humidity as that used for conditioning the test material.

Note: To reduce break times outside the gauge length, type 1A test pieces are recommended. In the case of the type 1 cutter, the probability of test pieces being rejected can be minimized by selecting a gauge length close to the maximum permitted value of 50 mm.

7.1 Tensile strength

Calculate the average thickness of each test piece.

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