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General requirements for footwear

鞋类通用技术要求

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General requirements for footwear

1 Scope

This Standard specifies the terms and definitions, classification, requirements, test methods, principle of inspection, marking, package, transportation, and storage of footwear products.

This Standard applies to footwear products for general wear.

This Standard does not apply to safety, protective, professional, and competitive sports footwear.

2 Normative references

The following documents are indispensable for the application of this document. For the dated references, only the editions with the dates indicated are applicable to this document. For the undated references, the latest edition (including all the amendments) are applicable to this document.

GB/T 251 Textiles - Tests for colour fastness - Grey scale for assessing staining

GB/T 2703 Footwear - Vocabulary

GB/T 2912.1 Textiles - Determination of formaldehyde - Part 1: Free and hydrolyzed formaldehyde (water extraction method)

GB/T 3293 Chinese last systems

GB/T 3903.1 Footwear - Test methods for whole shoe - Flexing resistance

GB/T 3903.2 Footwear - General test methods - Abrasion Resistance

GB/T 3903.3 Footwear - General test methods - Peeling strength

GB/T 3903.5 Footwear - General test methods - Appearance quality

GB/T 11413 Test Methods for Bond Strength of Leather Shoes Heels

GB/T 17592 Textiles - Determination of the banned azo colourants

GB/T 19941 Leather and fur - Chemical tests - Determination of formaldehyde content

5.1.1 The size of the last shall meet the requirements of GB/T 3293. Footwear products expressly in conformity with GB/T 3293 are deemed to comply with the provisions of this clause.

Note: The enterprise shall, according to its own situation, apply GB/T 3293 reasonably. If it does not comply, it cannot be expressly stated that this Standard is met.

5.1.2 The marking shall comply with the requirements of QB/T 2673.

5.1.3 Children's shoes and infants' shoes shall comply with the requirements of GB 30585.

5.1.4 Footwear shall not present defects which affect wearing.

5.2 Appearance quality

The whole shoe shall be straight, flat, and clean. The nail points shall not be exposed in the shoes. No nail tails shall be protruded. Insocks shall be fitted. Seam allowance shall be neat and firm.

5.3 Physical and mechanical performance requirements

5.3.1 General

Infants' shoes do not require physical and mechanical performances.

5.3.2 Upper sole peeling strength

5.3.2.1 Non-adhesive (such as sewing, seaming, etc.) shoes do not require the peeling strength of upper sole.

5.3.2.2 The upper sole peeling strength of slippers shall not be less than 25 N/cm. The upper sole peeling strength of other shoes shall not be less than 40 N/cm.

5.3.2.3 If the material is torn and the adhesive layer does not break, the peeling strength shall not be less than 30 N/cm.

5.3.3 Upper pull-off strength

5.3.3.1 Shoes which are not suitable for the testing of peeling strength (such as shoes with a thickness of more than 25 mm on the sole test position) are tested for upper pull-off strength instead.

5.3.3.2 Shoes with processes such as sewing, seaming, or riveting shall be tested for upper band pull-off strength. If the width of the upper band is larger than the clamp width (25 mm), and it is not suitable for cutting the sample, the

5.3.7 Color fastness to rubbing of linings and insoles

The wet rubbing staining grade of suede material shall not be less than Grade 2. The wet rubbing staining grade of fur and artificial wool shall not be less than Grade 3. The wet rubbing staining grade of other materials shall not be less than Grade 2-3.

5.3.8 Heel bond strength

An assembled heel with a heel height greater than 30 mm shall be tested for the heel bond strength. It shall not be less than 700 N.

5.3.9 Shank

5.3.9.1 Women's shoes and children's shoes with a heel height greater than 20.0 mm and a heel mouth greater than 8.0 mm, and men's shoes with a heel height greater than 25.0 mm and a heel mouth greater than 10.0 mm shall be fitted with shanks and other rigid support materials.

5.3.9.2 The length lower limit, longitudinal rigidity, hardness, and bending performance of shanks shall meet the requirements of GB/T 28011.

5.3.9.3 Shoes with an injection molding insole are not tested for shanks. The longitudinal rigidity of the insole shall meet the requirements of QB/T 4862.

5.3.10 Uppers material low-temperature flexing resistance

The uppers material low-temperature flexing resistance of the shoes worn in low temperature environment (such as winter shoes, etc.) shall meet the requirements of QB/T 2224.

5.3.11 Sole flexing resistance at low-temperature

The sole flexing resistance at low-temperature of the shoes worn in low temperature environment (such as winter shoes, etc.) shall meet the requirements of QB/T 4886.

5.4 Limited material requirements

5.4.1 Content of decomposable harmful aromatic amine dyes

The content of decomposable harmful aromatic amine dyes shall meet the requirements of Table 1. See Appendix A for a list of harmful aromatic amine dyes which shall not be decomposed from the dye under reducing conditions.

6.6 Outsole and outer insole adhesion

It shall be inspected according to GB/T 21396. The number of samples is 1 pair. 1 sample is taken from each sole. The test result takes the low value of the test results of 2 shoes.

6.7 Color fastness to rubbing of linings and insocks

According to Method A of QB/T 2882-2007, wet rubbing is carried out 50 times for inspection. The fur or artificial wool shall be inspected according to QB/T 2790. The grey scale shall meet the requirements of GB/T 251. TAKE the same material from linings and insocks as the sample. If there is no lining, the contact surface of the upper and the foot is taken as a sample for inspection. If the sample area does not meet the sampling requirements, the same batch of materials may be used for inspection.

6.8 Heel bond strength

The heel bond strength shall be inspected according to GB/T 11413.

6.9 Shank

The shank shall be inspected according to the method specified in GB/T 28011.

6.10 Uppers material low-temperature flexing resistance

The materials in the same batch as the uppers shall be inspected according to QB/T 2224.

6.11 Sole flexing resistance at low-temperature

Sole flexing resistance at low-temperature shall be inspected according to QB/T 4886.

6.12 Content of decomposable harmful aromatic amine dyes

6.12.1 Different materials shall be tested separately. If the upper and the lining cannot be separated, they shall be tested together; and the test method shall be the same as that for the lining.

6.12.2 Textiles shall be tested according to GB/T 17592. Leather and fur shall be tested according to GB/T 19942, where 4-aminoazobenzene shall be tested according to GB/T 33392.

6.13 Free or partially hydrolyzable formaldehyde content

6.13.1 Different materials shall be tested separately. If the upper and the lining

It shall be able to ensure that the edges of the sample cropped are neat.

B.2 Sampling and environmental conditioning

B.2.1 There shall be no less than one pair of whole shoes for each set of samples.

B.2.2 The upper of the whole shoe is cropped transversely into the sample strip with a width of (25.0 ± 0.5) mm. The sole is kept in its original shape. The upper band is cut open from the middle. If the width of the upper band is less than 25.0 mm, it is unnecessary to crop; and the upper band is directly cut open from the middle. USE a vernier caliper to measure the width of the upper band at the upper-sole joint. For the upper band of circular cross section, the diameter at the upper-sole joint is measured. For flip-flop belt sandals, the pull-off strength at the flip-flop belt shall also be tested.

B.2.3 Before the test, the sample shall, at $(23 \pm 2)^{\circ}\text{C}$, be placed for at least 4 h.

B.3 Test method

B.3.1 Test conditions

B.3.1.1 The tensile testing machine has a tensile speed of (50 ± 5) mm/min.

B.3.1.2 At $(23 \pm 2)^{\circ}\text{C}$, the test is carried out.

B.3.2 Test procedures

B.3.2.1 Adjust the zero point of tensile testing machine; and SET the tensile speed.

B.3.2.2 The upper and lower clamps of the tensile machine respectively hold the two upper bands. The upper-sole joints where the upper bands are located shall not be clamped. For flip-flop belt, the lower clamp of tensile testing machine clamps the sole; and the upper clamp clamps the flip-flop belt. The upper-sole joint where the flip-flop belt is located shall not be clamped.

B.3.2.3 Adjust the position of the clamp; visually MAKE the force bearing direction of the upper band perpendicular or parallel to the sole and consistent with the direction of application of force of tensile testing machine.

B.3.2.4 START the tensile testing machine until the upper band is separated from the sole; STOP and RECORD the maximum tensile force value.

B.3.2.5 If the tensile force reaches 350 N but the upper band is still not separated from the sole, the machine is stopped.

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