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Children's Athletic Shoes

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Foreword

This standard was drafted according to the rules given in GB/T 1.1-2009.

This standard was proposed by the China National Light Industry Council.

This standard shall be under the jurisdiction of the National Technical Committee on Shoes of Standardization Administration of China (SAC/TC 305).

Drafting organizations of this standard: China Leather and Footwear Industry Research Institute, Fujian Nanqi Shoes Industry Co., Ltd, ANTA (China) Co., Ltd., Fujian Bang Deng Shoes Industry Co., Ltd, Dr. Health Footcare Children's Shoes Industry (Beijing) Co., Ltd, Kading (Fujian) Child Product Co., Ltd., Fujian Oumeilong Sports Goods Co., Ltd, Fujian Nan Hua Shoes Industry Co., Ltd. and Taizhou Feiying Shoes Co., Ltd.

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Children's Athletic Shoes

1 Scope

This standard specifies the product classification, requirements, test methods and inspection rules as well as marking, packaging, transportation and storage of children's athletic shoes.

This standard is applicable to ordinary children's athletic shoes and infants' athletic shoes.

2 Normative References

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies. For undated references, the latest edition (including all the amendments) of the normative document applies.

GB/T 251 Textiles - Tests for Color Fastness - Grey Scale for Assessing Staining

GB/T 2703 Technical Terms for Leather Shoes Industry

GB/T 2912.1-2009 Textiles - Determination of Formaldehyde - Part 1: Free and Hydrolized Formaldehyde (Water Extraction Method)

GB/T 3293 Chinese last Systems

GB/T 3293.1 Shoes Sizes

GB/T 3903.1-2008 Footwear - General Test Methods - Flexing Resistance

GB/T 3903.2-2008 Footwear - General Test Methods - Abrasion Resistance

GB/T 3903.3-2011 Footwear - General Test Methods - Peeling Strength

GB/T 3903.4-2008 Footwear - General Test Methods - Hardness

GB/T 3903.5-2011 Footwear - General Test Methods - Appearance Quality

GB/T 3903.20-2008 Footwear - Test Methods for Accessories: Touch and close fasteners - Peel Strength before and after Repeated Closing

GB/T 3903.21-2008 Footwear - Test Methods for Accessories: Touch and close fasteners - Shear Strength before and after Repeated Closing

GB/T 17592-2006 Textiles - Determination of the Banned Azo Colourants

GB/T 19941-2005 Leather and Fur - Chemical Tests - Determination of Formaldehyde Content

GB/T 19942-2005 Leather and Fur - Chemical Tests - Determination of Banned Azo Colourants

GB 20400 Leather and Fur - Limit of Harmful Matter

QB/T 1187 Regulations for Acceptance, Labeling, Packaging, Transportation and Storage

QB/T 2224-2012 Footwear - Test methods for Uppers-low-temperature Flexing Resistance

QB/T 2673 Footwear - Specification of Marking

QB/T 2882-2007 Footwear - Test Methods for Uppers Linings and Insocks - Colour Fastness to Rubbing

OB/T 2886-2007 Footwear - Test Methods for Whole Shoe - Upper Sole Adhesion

QB/T 4108-2010 Metal Accessories for Footwear

QB/T 4340-2012 Footwear - Chemical Test Method - Determination of Total Heavy Metal Content - Inductively Coupled Plasma Atomic Emission Spectrometry Method

3 Terms and Definitions

For the purpose of this standard, the following terms and definitions as well as those defined in GB/T 2703 apply.

3.1 Infants' athletic shoes

Athletic shoes whose sizes are not greater than 170mm and for infants under 3 years old.

3.2 Children's athletic shoes

Athletic shoes whose sizes are not greater than 250mm and for children of 3 to 14 years old.

3.3 Primary parts

In the general situation, they refer to the outer side of upper surface, forepart,

		Length difference of solid sole in infants' athletic shoes is less than or equal to 1.5mm, width difference is less than or equal to 1.0mm, thickness difference is less than or equal to 0.5mm Length difference of foaming sole in infants' athletic shoes is less than or equal to 2.5mm, width difference is less than or equal to 2.0mm, thickness difference is less than or equal to 0.5mm.
6	Back seam deflection	Low upper≤2.5mm; other types ≤3.5mm
8	Suture [Translator note: Item 7 is not existed]	Stitches are neat and uniform; stitches in bottom are uniform in elasticity; primary parts are free from skipped stitching, double stitching, broken stitching, evagination stitching and split stitching; one skipped stitching or double stitching is permissible in subsidiary parts, each shoe shall not be greater than two.
9	Specific function	The shoes with flashing or sounding functions shall be complete, cell and wire shall not be exposed and installed firmly.
<p>Note 1:</p> <p>If the length difference of solid soles in same pair of children's athletic shoes is greater than 3.0, width difference is greater than 2.5mm, thickness difference is greater than 1.0mm, then they are determined as serious defects.</p> <p>If the length difference of foaming soles in the same pair of children's athletic shoes is greater than 4.5mm, width difference is greater than 3.5mm, thickness difference is greater than 1.0mm, then they are determined as serious defects.</p> <p>If the length difference of solid soles in the same pair of infants' athletic shoes is larger than 2.5mm, width difference is greater than 2.0mm, thickness difference is greater than 1.0mm, then they are determined as serious defects.</p> <p>If the length difference of foaming soles in the same pair of infants' athletic shoes is greater than 3.5mm, width difference is greater than 2.5 mm, thickness difference is greater than 1.0mm, then they are determined as serious defects.</p> <p>Note 2:</p> <p>If the vamp length difference in the same pair of children's athletic shoes is greater than 5.0mm, difference of back uppers height in low upper footwear is greater than 4.0mm, height difference of uppers in other type is greater than 6.0mm, then they are determined as serious defects.</p> <p>If the vamp length difference of the same pair of infants' athletic shoes is greater than 4.0mm, difference of back upper height in low upper footwear is greater than 3.5mm, height difference of uppers in other types is greater than 5.0mm, then they are determined as serious defects.</p>		

5.3 Physical and mechanical properties

5.3.1 Peel strength of upper sole or that between bottom wall and upper

5.3.1.1 Peel strength is not measured for sewing or bonding children's athletic shoes; for the rest, it shall be measured.

5.3.1.2 Peel strength of upper sole shall not be less than 40N/cm, peel strength between bottom wall and upper surface shall not be less than 60N/cm. In peel test, if the material is torn and the peel layer is not detached, peel strength shall be greater than 20N/cm.

5.3.2 Flexing resistance of finished shoes

5.3.2.1 Flexing resistance is not measured for infants' athletic shoes. For children's athletic shoes whose size is less than 230mm and whose thickness of flexing position in sole is greater than 25mm, their flexing resistance is not measured.

5.3.2.2 Technical indicators of flexing resistance in finished shoes is detailed in Table 2.

Table 2 Flexing Resistance

Item	Indicators
Flexing resistance	After flexing, the upper surface shall be free from broken grain; delamination in bottom wall, upper sole or sole is less than or equal to 5.0mm; cracks on sole after flexing shall not be greater than 3 and the longest crack is less than or equal to 5.0mm. The sole is free from falling off of paint; air (liquid) cushion in the shoes shall be free from leakage or shriveling after flexing.

5.3.3 Outsole abrasion resistance

5.3.3.1 Abrasion resistance is not measured for infants' athletic shoes.

5.3.3.2 Outsole abrasion resistance indicators: grinding crack length shall be less than or equal to 14mm.

5.3.4 Flexing index of upper material under low temperature

Flexing index of upper material under low temperature shall meet requirements of QB/T 2224-2012.

5.3.5 Colour fastness to rubbing of lining and insock

Technical index of color fastness to rubbing of lining and insock: staining shall be higher than or equal to Classes 2~3, and grey scale shall meet the requirements of GB/T 251.

5.3.6 Outsole hardness

Outsole hardness shall be greater than or equal 40 Shore A.

5.3.7 Adhesion strength between outsole and outside insole

Adhesion strength between outsole and outside insole shall be greater than or equal to 18N/cm; if the foaming material is torn and the bonding layer is not detached, adhesion strength shall be greater than or equal to 13N/cm.

5.3.8 Antifatigue performance of hook & loop fastener

Technical indicator of antifatigue performance for hook & loop fastener is detailed in Table 3.

It is detailed in Appendix B

5.6 Risks that may arise during design, production and application of the product

They are detailed in Appendix C.

6 Test Methods

6.1 Sensory quality

It may be inspected according to GB/T 3903.5-2011.

6.2 Peel strength of upper sole or that between bottom wall and upper

It is inspected according to GB/T 3903.3-2011. During the test, forepart or heel is inspected. Where the forepart and the heel cannot be peeled, side faces of shoes will be inspected, if both are not able to be test, then this item can be exempted.

6.3 Flexing resistance of finished footwear

It is inspected according to GB/T 3903.1-2008, and the 40 thousand times of consecutive flexing will be carried out without nicking.

6.4 Abrasion resistance of outsole

It is inspected according to GB/T 3903.2-2008, and abraded for consecutive 20min. Any position is measured for single-material outsole, while force-focusing position between the outsole and the ground will be measured for the outsole that is made of two or more materials.

6.5 Flexing index of upper surface material under low temperature

It is inspected according to QB/T 2224-2012, and sample is taken from raw material of upper.

6.6 Color fastness to rubbing of lining and insock

6.6.1 Materials of lining and insock are taken as samples. If there is no lining, contact surface between upper surface and the foot will be regarded as lining for the test.

6.6.2 The inspection is carried out according to Method A in QB/T 2882-2007, and it is conducted with 50 times of wet rubbing. Where sample cannot be taken from finished footwear, the same material may be taken for the test. The test result is judged according to grey scale in GB/T 251.

Table 6 Peculiar Smell Class of Footwear

Class	Description
1	No smell
2	It is with slight smell, but the smell is not obvious.
3	It is with obvious smell, but the smell is not rebarbative.
4	It is with strong and rebarbative smell.
5	It is with very strong and rebarbative smell.

6.11 Content of decomposable carcinogenic aromatic amine dye in textile

6.11.1 Lining and upper are inspected separately, so are the different materials. If the lining and upper surface can not be separated, they can be inspected together according to lining material inspection methods.

6.11.2 According to the requirements of GB/T 17592-2006, and the decomposable harmful aromatic amine dye in textile is inspected, and the detection limit is 5mg/kg.

6.12 Content of decomposable carcinogenic aromatic amine dye in leather

Sample preparation is the same as the preparation in Article 6.11.1, and the decomposable harmful aromatic amine dye is inspected according to the requirements of GB/T 19942-2005, the detection limit is 30mg/kg.

6.13 Formaldehyde content in textile

Sample preparation is the same as the preparation in Article 6.11.1, and is inspected according to GB/T 2912.1-2009.

6.14 Formaldehyde content in leather

Sample preparation is the same as the preparation Article 6.11.1, and is inspected according to GB/T 19941-2005.

6.15 Total content of heavy metal

It is inspected according to the requirements of QB/T 4340-2012.

7 Inspection Items and Qualification Evaluation

7.1 Inspection items

They shall meet the requirements of Table 7.

Appendix A

(Normative)

List of Carcinogenic Aromatic Amines

A.1 Carcinogenic aromatic amines (Category I) are listed in Table A.1.

Table A.1 Carcinogenic Aromatic Amines

No.	Chinese name	English name	CAS No.
1	4-氨基联苯	4-aminobiphenyl	[92-67-1]
2	联苯胺	benzidine	[92-87-5]
3	4-氯-邻甲基苯胺	4-chloro-o-toluidine	[91-69-2]
4	2-萘胺	2-naphthylamine	[91-59-8]
5	邻氨基偶氮甲苯	o-aminoazotoluene	[97-56-3]
6	2-氨基-4-硝基甲苯	2-amino-4-nitrotoluene	[99-55-8]
7	对氯苯胺	p-chloroaniline	[106-47-8]
8	2,4-二氨基苯甲醚	2,4-diaminoanisole	[615-05-4]
9	4,4'-二氨基二苯甲烷	4,4'-diaminobiphenylmethane	[101-77-9]
10	3,3'-二氯联苯胺	3,3'-dichlorobenzidine	[91-94-1]
11	3,3'-二甲氧基联苯胺	3,3'-dimethoxybenzidine	[119-90-4]
12	3,3'-二甲基联苯胺	3,3'-dimethylbenzidine	[119-93-7]
13	3,3'-二甲基-4,4'-二氨基二苯甲烷	3,3'-dimethyl-4,4'-diaminobiphenylmethane	[838-88-0]
14	2-甲氧基-5-甲基苯胺	p-cresidine	[120-71-8]
15	4,4'-亚甲基-二-(2-氯苯胺)	4,4'-methylene-bis-(2-chloroaniline)	[101-14-4]
16	4,4'-二氨基二苯醚	4,4'-oxydianiline	[101-80-4]
17	4,4'-二氨基二苯硫醚	4,4'-thiodianiline	[139-65-1]
18	邻甲苯胺	o-toluidine	[95-53-4]
19	2,4-二氨基甲苯	2,4-toluyldiamine	[95-80-7]
20	2,4,5-三甲基苯胺	2,4,5-trimethylaniline	[137-17-7]
21	邻甲氧基苯胺	o-anisidine	[90-04-0]
22	2,4-二甲基苯胺	2,4-xylydine	[95-68-1]
23	2,6-二甲基苯胺	2,6-xylydine	[87-62-7]
24	4-氨基偶氮苯	4-aminoazobenzene	[60-09-3]

Appendix B

(Informative)

Quality Judgment for After-sale of Children's Athletic Shoes

B.1 Period of after-sale service

It shall be determined by enterprises according to the product class and be clearly stated in the after-sales service specification.

B.2 After-sale quality judgment

Within after-sale service period, it may be judged as quality problem in case of the following problems under normal wearing.

- a) The shoes fail to meet the quality requirements for qualified product in the product standard;
- b) Nail tips (head) and unevenness are available inside the shoes which affect wearing.
- c) The upper surface cracks, upper allowance breaks, and the shoes are presented with serious white frost and decoloration, obvious loose upper of natural leather, falling off or cracking of finishing layer;
- d) Open seam and tackless;
- e) Deformation of counter-heel or toe-puff;
- f) Apparently discoloration in the shoes which pollutes socks or the lining is frazzled;
- g) Outsole or inner sole cracks, breaks or is uneven which will affects wearing.
- h) Foxing strip is tackless or fractures;
- i) Air (liquid) cushion leakage, shrinking and collapse.

B.3 Inspection methods

B.3.1 Appearance inspection is carried out according to the requirements of GB/T 3903.5-2011.

B.3.2 Decoloration: white absorbent cotton or gauze which has been saturated with clear water (until no drop by pressing with fingers) is used; the upper inside is repeatedly rubbed (within the length of 10cm) by hands gently for 10 times, then the

	especially products which may have direct contact with skin.
Tumble risk	
Poor stability	Instability due to low friction force between sole and the ground (such as slip down)
Poor strength and durability	Fracture of the product may trip the children (such as falling off of sole)
Protruding positions of shoes	Children may fall down due to intertwine among components of shoes with other objects.
Trapping risk	
Cut eye, pore and opening on shoes	Blocking fingers and toes
Shoe lace or ribbon band on shoes	The belt may be blocked in door of elevator and bus.
Ear-injured risk	
Scream or pulse noise	Product provided with music/sound facility
Continuous noise	
Abnormal growth risk	
Shape of shoes	It may lead to incorrect posture and footstep abnormality of children
Luminous and heating risks	
Electromagnetic field risk	Exposed in magnetic field (such as opened electronic equipment)
Strong light risk	If shoes are provided with luminous device, the device may harm skin and eyes.
Electronic risk	
Energization	Such as external leakage of electronic component, it may lead to electric shock.
Overheat	If battery is provided with, it may threaten children.
Battery	If battery is exposed, it may be swallowed by children.
Biological risk	
Biological agent (growing of bacteria)	If there is liquid in shoes (such as sole), microbe may be generated.
Cleanness	
Poor cleanness condition	Improper maintenance and wearing of product
Risk related to damage	
Lack of safety of shoes in service and after washing	Fracture of product (such as falling off of sole) may trip children Damaged overall structure may trip children, such as falling off of small components (infants' shoes)
Insufficient-information risk	
Operating instructions	The product may not be provided with operating instructions or incomplete instructions, or the instructions are difficult to understand, so that the product may not be wore or washed correctly

————— END —————