



National Standard of the People's Republic of China

GB 25038—2024

Replace GB 25038—2010, partially replace GB 21536—2008 and GB 25037—2010

General safety requirements for footwear

鞋类通用安全要求

(English Translation)

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Foreword

SAC/TC 305 (National Technical Committee on Footwear of Standardization Administration of China) is in charge of this English translation. In case of any doubt about the contents of English translation, the Chinese original shall be considered authoritative.

This document is drafted in accordance with the rules given in the GB/T 1.1—2020 *Directives for standardization — Part 1: Rules for the structure and drafting of standardizing documents*.

This document replaces the GB 25038—2010 *Rubber shoes healthy and safe specification*, and integrates the mandatory requirements of GB 21536—2008 *Athletic shoes* and GB 25037—2010 *Industrial rubber boots*. In addition to a number of structural and editorial changes, the main technical differences compared with the GB 25038—2010 are as follows:

- a) Revise the scope (see Clause 1, Clause 1 of the 2010 edition);
- b) Add the requirement and test method for “nail points and broken needles” (see 4.1 and 5.1);
- c) Add the requirement and test method for “chromium (VI)” (see 4.2 and 5.2);
- d) Delete the requirement and test method for “pH value” (see Clause 5 and 6.1 of the 2010 edition);
- e) Revise the requirement and test method for “free formaldehyde” (see 4.2 and 5.4, Clause 5 and 6.2 of the 2010 edition);
- f) Delete the requirement and test method for “extractable heavy metals” (see Clause 5 and 6.3 of the 2010 edition);
- g) Revise the requirement and test method for “dyes with decomposable carcinogenic aromatic amines” (see 4.2 and 5.3, Clause 5 and 6.4 of the 2010 edition);
- h) Add the requirement and test method for “dimethyl fumarate” (see 4.2 and 5.5);
- i) Add the requirement and test method for “chlorinated phenols” in genuine leather and fur (see 4.2 and 5.6);

- j) Add the requirement and test method for “phthalates” (see 4.2 and 5.7);
- k) Add the requirement and test method for “short-chain chlorinated paraffins” (see 4.2 and 5.8);
- l) Delete the requirement and test method for “N-nitrosamines” (see Clause 5 and 6.6 of the 2010 edition);
- m) Delete the requirement and test method for “color fastness to rubbing of linings and insoles” (see Clause 5 and 6.7 of the 2010 edition);
- n) Delete the “sampling method” (see 7.1 of the 2010 edition);
- o) Deleted the normative annex “List of prohibited N-nitrosamines in rubber” (see Annex B of the 2010 edition);
- p) Add the normative annex “List of restricted phthalate plasticizers” (see Annex B).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing body of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed and prepared by Ministry of Industry and Information Technology of the People's Republic of China.

The previous editions of this document are as follows:

—The first edition was issued in 2008 as GB 21536—2008;

—The first edition was issued in 2010 as GB 25038—2010, GB 25037—2010;

—This is the first revised edition, which integrates all the contents of GB 25038—2010, as well as the mandatory requirements of GB 21536—2008 and GB 25037—2010.

General safety requirements for footwear

1 Scope

This document defines footwear-related terms and definitions, specifies technical requirements and judgement for general safety of footwear, and describes the corresponding test methods.

This document is applicable to footwear made of various materials.

This document is not applicable to protective footwear (boots) or footwear intended for children aged 14 years and under.

2 Normative references

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

GB/T 2703 *Footwear—Vocabulary*

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

GB/T 17592 *Textiles—Determination of the banned azo colourants*

GB/T 18414.1 *Textiles—Determination of the content of chlorinated phenols—Part 1: Gas chromatography/mass spectrography*

GB/T 19941.1 *Leather and fur—Determination of formaldehyde content—Part 1: High performance liquid chromatography method*

GB/T 19941.2 *Leather and fur—Determination of formaldehyde content—Part 2: Colorimetric method*

GB/T 19942 *Leather and fur—Chemical tests—Determination of banned azo colorants*

GB/T 22807 *Leather and fur—Chemical tests—Determination of chromium (VI) content: Colorimetric method*

GB/T 22808 *Leather and fur—Chemical tests—Determination of chlorinated phenols content*

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GB/T 26713 *Footwear—Chemical tests—Determination of dimethyl fumarate (DMF)*

GB/T 32440.1 *Footwear—Chemical tests—Determination of phthalate—Part 1: Solvent extraction*

GB/T 38402 *Leather and fur—Chemical tests—Determination of chromium (VI) content: Chromatographic method*

GB/T 38405 *Leather and fur—Chemical tests—Determination of short-chain chlorinated paraffins*

GB/T 40263 *Textiles—Determination of short chain chlorinated paraffins*

SN/T 3814 *Determination of short chain chloroparaffin in rubber and plastic products—Gas chromatography tandem mass spectrometry (GC-MS/MS) method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 2703 and the following apply.

3.1

accessible

an articulated probe is manoeuvred to the part or component being tested. If any portion forward of the collar contacts the part or component, that part or component on the footwear is considered to be accessible

[Source: GB 6675.2—2014, 5.7.1, modified]

4 Technical requirements

4.1 Nail point and broken needle requirements

4.1.1 Nail points shall not be present inside footwear. Nail points shall not be present outside footwear, except for special styles and functional needs.

4.1.2 Broken needles shall not be present inside or outside footwear.

4.2 Limit requirements for chemical substances

Limit requirements for chemical substances are listed in Table 1.

Table 1 Limit requirements for chemical substances

No.	Items ^a		Requirements ^b
1	Chromium (VI) (CAS No. 18540-29-9) / (mg/kg)	Genuine leather, fur	≤10
2	Dyes with decomposable carcinogenic aromatic amines ° / (mg/kg)	Textiles	≤20
		Artificial leather, synthetic leather	≤30
		Genuine leather, fur	≤30
3	Formaldehyde (CAS No. 50-00-0) / (mg/kg)	Textiles, artificial leather, synthetic leather, genuine leather, fur	Skin-direct-contact materials ^d ≤75
			Skin-indirect-contact materials ^d ≤300
4	Dimethyl fumarate (CAS No. 624-49-7) / (mg/kg)	Textiles, artificial leather, synthetic leather, genuine leather, fur	≤0.1
5	Chlorinated phenols / (mg/kg)	Textiles, artificial leather, synthetic leather	Pentachlorophenol (CAS No. 87-86-5) ≤0.5
			2, 3, 5, 6-Tetrachlorophenol (CAS No. 935-95-5) ≤0.5
		Genuine leather, fur	Pentachlorophenol (CAS No. 87-86-5) ≤0.5
6	Phthalates ^e	Coated (printed) materials, artificial leather, synthetic leather, rubber, plastic and other synthetic materials	Sum of DEHP, DBP, BBP, DIBP ≤0.1%
7	Short-chain chlorinated paraffins (C ₁₀ ~C ₁₃ , CAS No. 85535-84-8)	Textiles, artificial leather, synthetic leather, genuine leather, fur, rubber, plastic and other synthetic materials	≤0.15%
^a Materials of accessible components shall be tested. ^b When testing the content of chemical substances according to the test method for genuine leather, the results are calculated based on the actual mass of the test specimen. ^c Annex A provides the list of carcinogenic aromatic amines that can be released from dyes by reductive cleavage. ^d In general, linings and insoles (insoles) are materials with direct skin contact, and uppers and outsoles are materials without direct skin contact. However, if there are no linings or insoles (insoles), uppers or outsoles are materials with skin direct contact. ^e Annex B provides the list of restricted phthalate plasticizers.			

5 Test methods

5.1 Nail points and broken needles

5.1.1 Nail point test is carried out by visual inspection and hand feel.

5.1.2 Broken needle test is carried out by metal detectors and/or visual inspection, hand feel.

5.2 Chromium (VI)

Different samples are tested separately according to GB/T 22807 or GB/T 38402. In case of a dispute, the test result of GB/T 38402 is used in preference.

5.3 Dyes with decomposable carcinogenic aromatic amines

5.3.1 Different samples are tested separately. When linings and uppers cannot be separated, they are tested together according to the test method for the lining material. For the sample under testing that has other materials laminated on the backside, the laminated materials shall be completely removed before testing. This shall be stated in the test report in case it is really unable to be removed.

5.3.2 Textiles, artificial leather and synthetic leather are tested according to GB/T 17592. Genuine leather and fur are tested according to GB/T 19942.

5.4 Formaldehyde

5.4.1 Specimen preparation is the same as 5.3.1

5.4.2 Textiles, artificial leather and synthetic leather are tested according to GB/T 2912.1. Genuine leather and fur are tested according to GB/T 19941.1 or GB/T 19941.2, and in case of a dispute, the test result of GB/T 19941.1 is used in preference.

5.5 Dimethyl fumarate

Different samples are tested separately according to GB/T 26713.

5.6 Chlorinated phenols

5.6.1 Specimen preparation is the same as 5.3.1.

5.6.2 Textiles, artificial leather and synthetic leather are tested according to GB/T 18414.1. Genuine leather and fur are tested according to GB/T 22808.

5.7 Phthalates

Different samples are tested separately according to GB/T 32440.1. For the sample under testing that has other materials laminated on the backside, the laminated materials shall be completely removed before testing. This shall be stated in the test report in case it is really unable to be removed.

5.8 Short-chain chlorinated paraffins

5.8.1 Specimen preparation is the same as 5.3.1.

5.8.2 Textiles are tested according to GB/T 40263. Genuine leather, fur, artificial leather and synthetic leather are tested according to GB/T 38405. Rubber, plastic and other synthetic materials are tested according to SN/T 3814.

6 Judgment

Judgment is made in accordance with Clause 4. If all the test results meet the requirements of Clause 4, the sample is judged as qualified, otherwise it is unqualified.

7 Implementation of the standard

For products manufactured or imported before the implementation date of this document, it shall be put into effect in the 19th month following the implementation date of this document.

Annex A

(normative)

List of carcinogenic aromatic amines

Table A.1 provides the list of carcinogenic aromatic amines that can be released from dyes by reductive cleavage.

Table A.1 List of 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	95-69-2
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-toluylenediamine	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-xylidine	95-68-1
23	2,6-二甲基苯胺	2,6-xylidine	87-62-7
24	4-氨基偶氮苯	4-aminoazobenzene	60-09-3

Annex B

(normative)

List of restricted phthalate plasticizers

Table B.1 provides the list of restricted phthalate plasticizers.

Table B.1 List of restricted phthalate plasticizers

No.	Chinese name	English name	CAS No.
1	邻苯二甲酸二丁酯	dibutyl phthalate (DBP)	84-74-2
2	邻苯二甲酸丁基苄基酯	benzylbutyl phthalate (BBP)	85-68-7
3	邻苯二甲酸二(2-乙基)己酯	di(2-ethylhexyl) phthalate (DEHP)	117-81-7
4	邻苯二甲酸二异丁酯	diisobutyl phthalate (DIBP)	84-69-5

Bibliography

[1] GB 6675.2—2014 Safety of toys—Parts 2: Mechanical and physical properties
