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INDUSTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

HG/T 3084-2010

Replacing HG/T 3084-1999

Injection Molding Shoes

注塑鞋

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Foreword

This standard replaces "Injection Molding Shoes" (HG/T 3084-1991).

The main technical changes in this standard over "Injection Molding Shoes" (HG/T 3084-1991) are as follows:

- Net items were added in product classification;
- The item “flexing resistance” of finished shoes was added;
- The item “discoloration resistance” was added;
- Items of tensile strength, elongation at break and hardness inspection were deleted;
- Parts of requirements on appearance quality were modified;
- The provision "Defects that may affect wearing shall not exist" was added in appearance quality requirements;
- The name of “cold resistance” was changed into “cut increasing resistance”;
- Methods for cold resistance test were adjusted.

This standard was proposed by China Petroleum and Chemical Industry Association.

This standard shall be under the jurisdiction of the Subcommittee on Rubber Shoes the National Technical Committee on Rubber & Products of Standardization Administration of China (SAC/TC 35/SC9).

Drafting organizations of this standard: Fujian Footwear Products Quality Supervision and Inspection Center, and Fujian Jinjiang Yuantong Shoe Co., Ltd.

Chief drafting staffs of this standard: You Yongyi, Xu Chunshu, Cai Hongshan, Li Jianjia, and Li Huawei.

Previous editions of the standard replaced by this standard are:

- HG/T 3084-1989;
- HG/T 3084-1999.

Injection Molding Shoes

1 Scope

This standard specifies the classification, requirements, test methods, inspection rules and marking, packing, transportation and storage of injection molding shoes.

This standard is applicable to common shoes made by injection molding process with thermoplastic elastomer SBS, PVC and modified PVC as sole materials, and synthetic or natural materials as upper materials.

2 Normative References

The provisions contains in the following normative documents which, through reference in this text, shall constitute provisions of this standard. For dated references, subsequent amendments to (excluding correction to), or revisions of, any of these publications do not apply. However, the parties coming to an agreement according to this standard are encouraged to research whether the latest editions of these labels are applied or not. For undated references, the latest editions of the normative documents apply.

GB/T 3293.1-1998 Shoes Size

GB/T 3293-2007 Chinese Last Systems

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

GB/T 3903.5-1995 General Test Method for Footwear-Test Method of Appearance

HG/T 2198-1991 Rubber Vulcanized-The general Requirements for the Physical Test Method

HG/T 2403-2007 Test Rule, Marking, Packing, Transport, Storage for Rubber Shoes

HG/T 2411-2006 Test Method for 90° Flexing of Sole Material

HG/T 3689-2001 Test Method of Discoloration for Footwear

3 Classification

Injection molding shoes are classified according to outsole materials:

a) Injection molding shoes with thermoplastic elastomer SBS soles;

b) Injection molding shoes with PVC soles;

c) Injection molding shoes with dense-type modified PVC soles;

d) Injection molding shoes with foamed modified PVC soles.

4 Requirements

4.1 Shoe size, model and last size

Shoe size and model shall meet the requirements of GB/T 3293.1-1998. Last size shall meet the requirements of GB/T 3293-2007.

4.2 Physical properties

The physical properties shall be in accordance with those specified in Table 1.

Table 1 Physical Properties

Item	Technical requirement
Cut-growth resistance/mm	≤6
Heating loss [a]/%	≤5
Discoloration resistance/ Grade	≥3~4
Flexing resistance of finished shoes [b] (pre-cut is 5cm, with continuous flexing of 40,000 times)	Split length ≤15 mm, New cracks ≤5mm, Upper sole (foxing) chip ≤10mm, Shall be free from broken surface
[a] Heating loss is not conducted towards SBS sole and foamed-type modified PVC sole. [b] Flexing resistance of finished shoes with size below 230 shall not be tested.	

4.3 Appearance quality

Appearance quality shall meet the requirements of Table 2.

Table 2 Appearance Quality

No.	Name of defect	Technical requirement
1	Color difference	Relative parts of one pair of shoes shall be without obvious color different within visual range of 1m
2	Height difference of relative parts of back uppers	Not greater than 4mm
3	Stain	Accumulative total area shall not exceed 50mm^2 and single stain shall not exceed 25mm^2
4	Upper sewing defect	Skipping stitch: for one stitch, less than four places Double stitch: for three stitches, less than four places Broken thread: disallowed, thread end shall not be exposed on upper

Prepare 2 test blocks with the length of (40±3)mm, width of (10.0±0.2)mm and thickness of (2.0±0.3)mm according to the methods in HG/T 2198-1991. Place them in a dryer with calcium chloride or silica gel. Measure its mass 24h later. Then place the 2 test blocks in an air thermotank at (100±2)°C and keep them for 6h. Transfer them into a dryer and keep for 1h. Then measure the mass.

The heating loss H (%), expressed by mass fraction, shall be calculated according to Formula (1). And the test result shall take the average value.

$$H\,(\%) = \frac{W_S - W_A}{W_S} \times 100 \qquad (1)$$

Where,

W_S - the mass of test block before heating, g;

W_A - the mass of test block after heating, g.

5.3 Discoloration resistance

Test shall be carried out according to Method A in HG/T 3689-2001. The irradiation time is 6h and the irradiation parts are the light-colored outsole and upper.

5.4 Flexing resistance of finished shoes

It shall comply with GB/T 3903.1-2008.

.5 Appearance quality

It shall comply with GB/T 3903.5-1995.

6 Inspection Rules

It shall be implemented in accordance with HG/T 2403-2007.

7 Marking, Packing, Transportation and Storage

7.1 It shall be implemented in accordance with HG/T 2403-2007.

7.2 Sole and upper main materials shall be indicated on the marking.

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