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**The Clothing with Safety Sign for the Working
People on Roads**

道路作业人员安全标志服

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The Clothing with Safety Sign for the Working People on Roads

1 Scope

This document specifies the style, technical requirements, test methods, inspection rules, as well as marking, packaging, transportation and storage of the clothing with safety sign for working people on roads.

This document is applicable to the signed clothing worn by people who carry out road administration, maintenance, construction and other operations on the roads.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 250 Textiles - Tests for Color Fastness - Grey Scale for Assessing Change in Color

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

GB/T 1335.1 Size Designation of Clothes - Men

GB/T 1335.2 Size Designation of Clothes-Women

GB/T 3922 Textiles - Testing Method for Color Fastness to Perspiration

GB/T 3923.1 Textiles--Tensile Properties of Fabrics - Part 1: Determination of Breaking Force and Elongation at Breaking Force - Strip Method

GB/T 3978 Standard Illuminants and Geometric Conditions

GB/T 3979 Methods of Measuring the Color of Materials

GB/T 4745 Textile Fabrics - Determination of Resistance to Surface Wetting - Spray Test

GB/T 7742.1 Textiles - Sting Properties of Fabrics – Part 1: Hydraulic Method for Determination of Bursting Strength and Bursting Distension

2 - elastic band or fastener.

Figure 5 – Schematic Diagram for the Style of Mesh Signed Cap

5 Technical Requirements

5.1 Appearance and size of the signed clothing

5.1.1 Appearance of the signed clothing

5.1.1.1 The signed clothing shall be sewn and ironed smoothly, with uniform color.

5.1.1.2 There shall be no obvious color difference, skipping, holes, stains, oil stains and other defects on the fabric of ordinary type of signed clothing; the front and back parts shall be cut in one piece; and there shall be no splicing.

5.1.1.3 The mesh fabric of the mesh vest shall not have defects such as stitches, missing stitches, cross paths, napping, broken ends, or uneven color, and the like defects; the periphery and splicing parts of the mesh vest shall be trimmed with fabrics of similar colors.

5.1.1.4 The surface of the reflective material sewn on the signed clothing shall be smooth and clean; and there shall be no defects such as scratches, missing coating, uneven color or uneven retroreflective performance. There shall be no more than one splicing seam of reflective material on each signed clothing.

5.1.2 Size of the signed clothing

5.1.2.1 Clothing size

5.1.2.1.1 The size of ordinary type of signed clothing shall meet the requirements of GB/T 1335.1 and GB/T 1335.2.

5.1.2.1.2 The length of the mesh vest shall be $60\text{cm}\pm 2\text{cm}$; and the width shall be $45\text{cm}\pm 2\text{cm}$. The length of the TAB on the back part shall be no less than 20cm; and the width shall be $8\text{cm}\pm 0.5\text{cm}$.

5.1.2.2 Size of reflective material

The width of the reflective cloth or reflective tape sewn on the signed clothing shall be no less than 50mm; and the length shall cover the waist circumference of the signed clothing horizontally; the distance between two parallel reflective clothes or reflective tapes shall be no less than 50mm. The width of the reflective cloth or reflective tape sewn on the signed cap shall be $25\text{mm}\pm 1\text{mm}$.

5.1.2.3 Sizes of accessories

Table 1 – Fabric Color of the Ordinary Type of Signed Clothing

Chromaticity coordinates				Brightness factor
<i>x</i>	<i>y</i>	<i>x</i>	<i>y</i>	
0.610	0.390	0.535	0.375	0.570 0.340
				0.655 0.345
				≥0.40

5.3.3.2 After the light fastness test, the chromaticity coordinates and brightness factor of the signed clothing fabric shall comply with the provisions of Table 1.

5.3.4 Color fastness of fabric

5.3.4.1 Color fastness to perspiration

After testing in accordance with the method specified in GB/T 3922, the discoloration shall be no less than Level-4, when evaluated in accordance with the provisions of GB/T 250; and the staining shall be no less than Level-4, when evaluated in accordance with the provisions of GB/T 251.

5.3.4.2 Color fastness to washing

After testing according to the method specified in GB/T 12490, the discoloration is no less than Level 4-5, and the staining is no less than Level-4.

5.3.5 Fluorescence performance

After testing in accordance with the method specified in 6.8, the brightness value of the ordinary signed clothing fabric shall be no less than 20cd/m².

5.4 Reflective material

5.4.1 Classification of reflective materials

Reflective materials are divided into two types: reflective cloth and reflective tape.

5.4.2 Performance of the reflective material

5.4.2.1 The performance of the reflective material before washing

5.4.2.1.1 The value of the retroreflective coefficient of the reflective material used in the signed clothing shall be no lower than that specified in Table 2.

5.4.2.1.2 For direction-sensitive reflective materials, when measuring the retroreflective coefficient of the reflective material of the signed clothing under one of the rotation angle conditions of 0° or 90°, the value measured in the direction of the rotation angle with the larger test value shall be no less than the provisions of Table 2; the value measured in the direction of the rotation angle with a small test value shall be no less than 75% of the minimum value specified in Table 2.

6.0N/cm.

6 Test Method

6.1 Preparation of specimen

According to different situations, randomly select the following items to prepare various specimens:

- a) The signed clothing product produced by the signed clothing manufacturer shall be served as a product specimen;
- b) The fabric or reflective fabric made of the signed clothing is cut 150mm×150mm to make a fabric specimen or reflective fabric specimen;
- c) The reflective tape or reflective cloth on the signed clothing shall have a width of no less than 50mm and a length of 200mm to make a reflective tape specimen or strip-shaped reflective cloth specimen;
- d) For other tested materials, according to the requirements of the test method, cut out the corresponding size and make the test specimen.

6.2 Status adjustment

The specimen shall be placed in the corresponding test environment for 24h before various tests can be carried out.

6.3 Test conditions

6.3.1 General optical performance test should be carried out in an environment with a temperature of $23^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and a relative humidity of $50\%\pm 5\%$.

6.3.2 The fabric quality test should be carried out in an environment with a temperature of $20^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and a relative humidity of $65\%\pm 5\%$.

6.4 Appearance, size and sewing

Under bright daylight conditions or on a workbench with a 60W fluorescent lamp installed directly above, visually inspect the appearance quality and sewing requirements of the signed clothing, and measure the size with tools such as steel rulers.

6.5 Mechanical properties of fabric

6.5.1 Breaking strength

Before the signed clothing leaves the factory, a sufficient number of samples shall be randomly selected and inspected according to the requirements of Table 3. Only after passing the inspection, can they leave the factory.

7.3 Type inspection

7.3.1 For type inspection, samples shall be taken at the end of the production line or in the warehouse of the production organization.

7.3.2 Type inspection shall be carried out in one of the following situations:

- a) Newly designed and trial-produced products;
- b) During the formal production process, if there are major changes in raw materials and processes, which may affect the performance of the product;
- c) When there is a big difference between the exit-factory inspection result and the previous type inspection;
- d) When the national quality supervision agency proposes type inspection.

7.4 Judgment rules

7.4.1 At least 3 samples of the same batch shall be taken for each performance test. All the test results of the samples are qualified, that is, the test result is qualified. The arithmetic average of the test results of 3 (or more than 3) samples is the test result.

7.4.2 If the test result of a sample does not meet the requirements of the standard, a double number of samples shall be taken from the same batch of products for re-inspection of the unqualified item. If the re-inspection results are all qualified, the entire batch of product is qualified; if any index in the re-inspection result (including any index required by the test) is unqualified, the whole batch of products is unqualified.

8 Marking, Packaging, Transportation and Storage

8.1 Marking

Each signed clothing that leaves the factory shall be sewn with a mark that includes the name or trademark of the manufacturer, the specification and model of the signed clothing, and the level of reflective fabric.

8.2 Packaging

8.2.1 Each set of signed clothing shall be packaged in a colorless and transparent plastic bag with a thickness of no less than 30μm. The front of the plastic bag shall be printed with the black words "Clothing with Safety Sign for Working People on Roads".

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