

ICS 13.340.10

CCS C73



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 12014-2019

Protective clothing - Static protective clothing

防护服装 防静电服

Issued on: December 31, 2019

Implemented on: July 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Technical requirements
4.1	Fabric
4.2	Clothing
4.2.8	Antistatic performance of clothing
5	Test methods
5.1	SPREAD the fabric or clothing flat on the table; OBSERVE at a distance of
6	Inspection rules
7	Identification
7.1	Permanent identification
8	Packaging and storage

1 Scope

China's mandatory national standard for static protective clothing. The garment exists for one reason: in an atmosphere that can be ignited by a spark, the person in it is a capacitor. Walking on a floor, sliding off a seat or peeling off an outer layer charges an ordinary garment to several kilovolts, and the discharge from a human body carries enough energy to ignite a solvent vapour or a dust cloud. So the clothing is made with conductive fibre woven through it in a grid, which drains the charge continuously instead of letting it build. The requirements are correspondingly specific: the surface and volume resistance, the charge decay time, and the half-life of the charge, all measured after repeated washing, because the conductive grid is the part that fails first and its failure is invisible. The standard applies to protective clothing worn where static ignition is the hazard.

This Standard specifies the technical requirements, test methods, inspection rules, identification, etc. of static protective clothing. This Standard applies to static protective clothing worn in places that may cause electric shock, fire and explosion hazards due to static electricity. This Standard does not apply to non-woven static protective clothing and static protective clothing for power supply voltage protection.

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 1335.1 Standard sizing systems for garments - Men

GB/T 1335.2 Standard sizing systems for garments - Women

GB/T 2912.1 Textiles - Determination of formaldehyde - Part

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 static protective clothing Work clothing that are made of static protective fabric and according to the specified style and structure to reduce the accumulation of static electricity on the clothing.

3.2 static protective fabric Fabrics that are woven of yarn mixed with conductive fibres or embedded conductive filaments when weaving, or fabrics that are made of treated electrostatic dissipative materials.

3.3 electrostatic dissipative material Materials of which the surface resistivity is greater than or equal to $1 \times 10^5 \Omega/\square$, but less than $1 \times 10^{11} \Omega/\square$.

3.4 conductive fibre Fibres that are all or partially made of conductive materials or electrostatic dissipative materials.

3.5 surface resistivity Ratio of the potential gradient that is parallel to the direction of the current passing through the surface of the material TO the current per unit width of the surface, that is, the DC resistance between two opposite sides of a square material per unit area. NOTE. Unit. $\Omega/\square$.

4.1 Fabric

4.1.1 Appearance quality Test according to the method specified in 5.1, the fabric shall be free of damage, spots, dirt or other defects that affect the performance of the fabric.

4.1.2 Physical and chemical properties of woven fabrics The physical and chemical properties of woven fabrics shall meet the requirements of Table

1. For clothing with lining, the formaldehyde content, pH value and decomposable carcinogenic aromatic amine dyes of the lining shall meet the requirements of Table 1.

4.1.3 Physical and chemical properties of knitted fabrics The physical and chemical properties of knitted fabrics shall meet the requirements of Table

2. For clothing with lining, the formaldehyde content, pH value and decomposable carcinogenic aromatic amine dyes of the lining shall meet the requirements of Table 2.

4.2 Clothing

4.2.1 Clothing fabrics The fabrics of finished clothing shall meet the technical requirements of 4.1.

4.2.2 Structure and style The clothing structure shall be easy to put on and take off and adapt to physical activities during work. If the clothing itself has a multilayer structure, it shall be able to ensure that the outermost material always covers the inner clothing when worn.

4.2.3 Size and specifications The size and specifications of static protective clothing for men are selected according to the requirements of GB/T 1335.1, and the size and specifications of static protective clothing for women are selected according to the requirements of GB/T 1335.2.

4.2.8 Antistatic performance of clothing

4.2.8.1 Where stripe-like or grid-like conductive fibers or conductive filaments are used to achieve antistatic performance, the spacing of conductive materials shall not be greater than 10 mm.

4.2.8.2 Test according to the method specified in Annex B, the charged electric charge shall not be greater than 0.60 $\mu\text{C}/\text{set}$.

5.1 SPREAD the fabric or clothing flat on the table; OBSERVE at a distance of

1.5 m from the product under good lighting conditions. Broken warp, broken weft, damage and stains are not allowed.

5.2 SELECT samples from different parts of the fabric and clothing lining, and TEST the formaldehyde content according to the method specified in GB/T 2912.1.

5.5 The smell is tested according to the method specified in GB 18401.

5.6 The dimensional change rate and relaxed dimensional change rate of the fabric are carried out according to the provisions of GB/T 8628 and GB/T 8630. Use the 4N procedures in GB/T 8629 to wash; woven fabrics are dried by hanging and drying, and knitted fabrics are dried by flat drying.

5.7 SELECT 10 samples from different parts of the fabric or clothing, and TEST the air permeability according to the method specified in GB/T 5453.

5.8 The color fastness to washing of fabrics is tested according to the method A (1) specified in Table 2 of GB/T 3921-2008.

5.16 The tester wears clothing of suitable size and performs the following actions.

5.17 The seam strength of finished clothing adopts different test methods according to the

different fabrics used in the clothing. The clothing made of woven fabrics is tested according to the method specified in GB/T 3923.1. CUT five samples with the seam in the center from the part with weak seam, and the direction of the seam is at a 90° angle to the direction of the force.

6 Inspection rules

6.1 Factory-exit inspection The manufacturer shall carry out the factory-exit inspection on the static protective clothing batch by batch according to the production batch. See Table 5 and Table 6 for the test items, test sample size, non-conformity classification and determination array.

7.1 Permanent identification

7.1.1 Each set of clothing shall be marked with static protective graphic symbols. See Annex B of GB/T 20097-2006 for the identification style.

7.2 Information provided by the manufacturer The information provided by the manufacturer shall include but not limited to the following.