INTERNATIONAL STANDARD

**ISO 15487**

Third edition
2018-09

# Textiles — Method for assessing appearance of apparel and other textile end products after domestic washing and drying

*Textiles — Méthode d'évaluation de l'aspect des vêtements et autres produits textiles finis après lavage et séchage domestiques*



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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.



This document was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 2, *Cleansing, finishing and water resistance tests*.



This third edition cancels and replaces the second edition (ISO 15487:2009), which has been technically revised. The main changes compared to the previous edition are as follows:

— in Clause 1, the appearance assessment has been extended to colour change, pilling, fuzzing, matting appearance of fabrics, damage of components (buttons, press fasteners, slide fasteners, etc.) and physical garment changes (e.g. spirality);

— in Clause 3, the term “durable press” has been deleted and the succeeding terms have been renumbered;

— in Clause 6, the distinction of preparation of different test specimens (fabrics, garments, etc.) have been specified;

— in 7.4, the use of manikin for the garment assessment has been introduced, and a (non-exhaustive) list of appearance changes (Table 1) for the qualitative method of the assessment has been added;

— procedures described in 7.5, 7.6, 7.7, 7.8, 7.9 and 7.10 have been modified and clarified;

— a new informative Annex B showing an example of appearance rating has been added;

— new references have been added in the Bibliography.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

# Textiles — Method for assessing appearance of apparel and other textile end products after domestic washing and drying

## 1 Scope

This document specifies a method of test for evaluating the appearance of apparel and other textile end products after one or several domestic washing and drying treatments. The appearance evaluated includes colour change, pilling, fuzzing, matting appearance of fabrics, smoothness appearance of flat fabric and seams, and the retention of pressed-in creases in garments and other textile products, damage of components – buttons, press fasteners, slide fasteners, etc.

This document is applicable to any washable textile end product of any fabric construction. Techniques for seaming and creasing are not included since the purpose is to evaluate textile end products as they are supplied from the manufacturer or as ready-to-use. Techniques for seaming and creasing are controlled by fabric properties.

This method has been developed primarily for use with domestic washing machines of Type B as defined in ISO 6330, but it can be used with any type of machine defined in ISO 6330.



It is recognized that prints and patterns can mask the wrinkled appearance present in textile end products. The rating process is, however, based on the visual appearance of specimens including such effects.





## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 105-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 6330, *Textiles — Domestic washing and drying procedures for textile testing*

ISO 16322-3, *Textiles — Determination of spirality after laundering — Part 3: Woven and knitted garments*

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

**3.1**
**appearance**
overall visual impression of garments and other textile end product, quantified by comparison of individual components with appropriate reference standards

**3.2**
**crease retention**
<fabrics> visual impression of an inserted crease, quantified by comparison with a set of reference standards

**3.3**
**dryer crease**
<fabrics> sharp fold or line running in any direction in a laundered or dried specimen

Note 1 to entry: Dryer creases are unintended results of restricted movement of specimens in the washer or the dryer.

**3.4**
**laundering**
<fabric, garments and textile end products> process intended to remove soils and/or stains by treatment (washing) with aqueous detergent solution and normally including rinsing, extracting and drying

**3.5**
**seam smoothness**
<fabrics> visual impression of flatness of a seamed specimen

**3.6**
**smoothness appearance**
<fabrics> visual impression of flatness of a specimen

## 4 Principle



**4.1** Garments or other textile end products are subjected to procedures simulating domestic laundering practices. One of the washing and drying procedures specified in ISO 6330 is used, as agreed between the interested parties.



**4.2** Garments or other textile end products are visually assessed under specified illumination. A supplemental spot light suitably placed to highlight the creased area of the textile is used in crease evaluation.

**4.3** If required, garments or other textile end products are compared visually with plastic smoothness appearance replicas, plastic crease replicas and/or photographic seam standards under specified illumination.

## 5 Apparatus

**5.1 Washing and drying apparatus**, as specified in ISO 6330.

**5.2 Lighting and evaluation area**, in a darkened room using lighting arrangement shown in Figure 1 and Figure 2 and comprising the following items. Lamp dimensions should be chosen to extend beyond the overall surface of a test specimen and replicas, when used for the assessment.

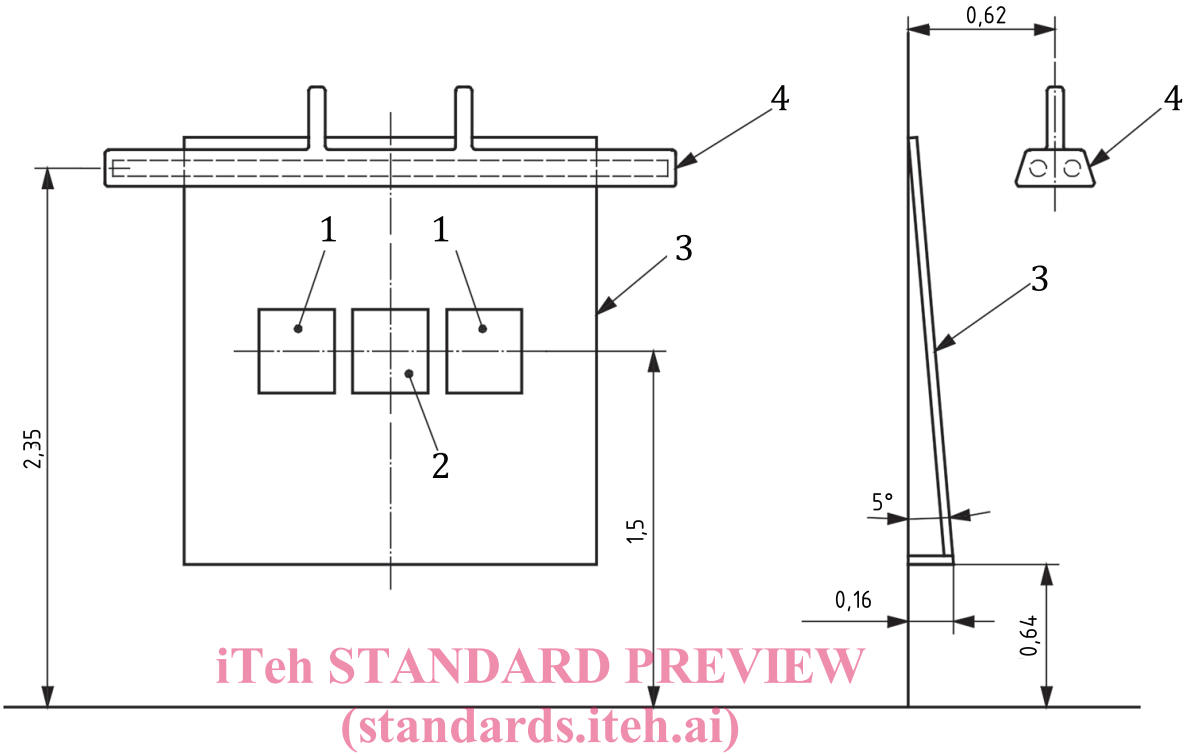
**5.2.1 Two cool white (CW) fluorescent lamps**, placed side by side, without baffle or glass, a minimum of 2 m in length each.

**5.2.2 One white enamel reflector**, without baffle or glass.

**5.2.3 One thick plywood viewing board**, painted in grey to match grade 2 on the grey scale for assessing staining specified in ISO 105-A03.

**5.2.4 One 500 W reflector floodlight and lightshield**, for protecting the viewer's eyes from direct light for grading creases, as illustrated in Figure 2.

Dimensions in metres





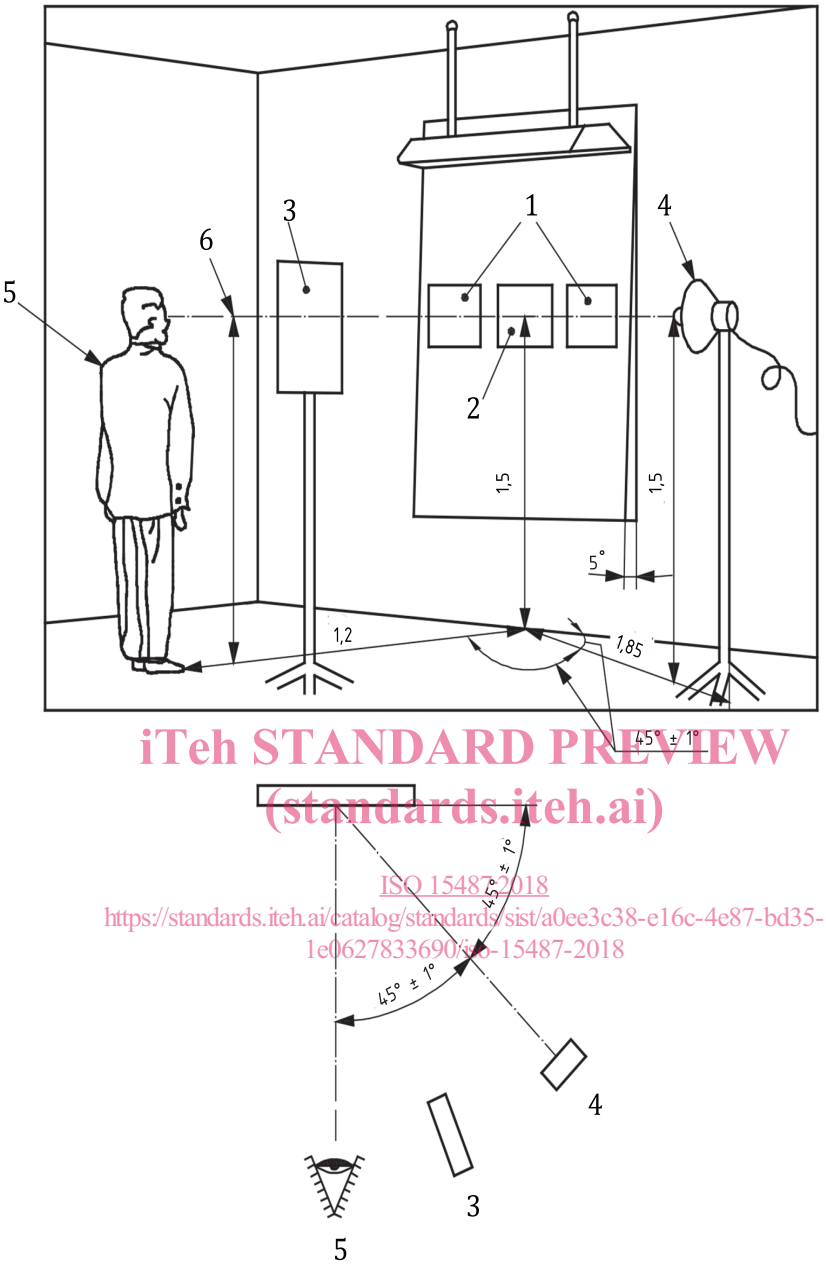

**Key**

1 replica
2 test specimen
3 board for viewing
4 example of fluorescent lamp placement



**Figure 1 — Lighting and viewing arrangement for test specimens for smoothness and seam appearance**

Dimensions in metres






**Key**

1 replica
2 test specimen
3 light shield
4 500 W reflector floodlight
5 observer
6 arbitrary eye level

**Figure 2 — Lighting and viewing arrangement for creases only**

**5.3 Manikin,** three dimensional form (used commonly for tailoring).

**5.4 American Association of Textile Chemists and Colourists (AATCC) standard plastic crease replicas**, prepared for evaluating creases, as shown in Figure 3.

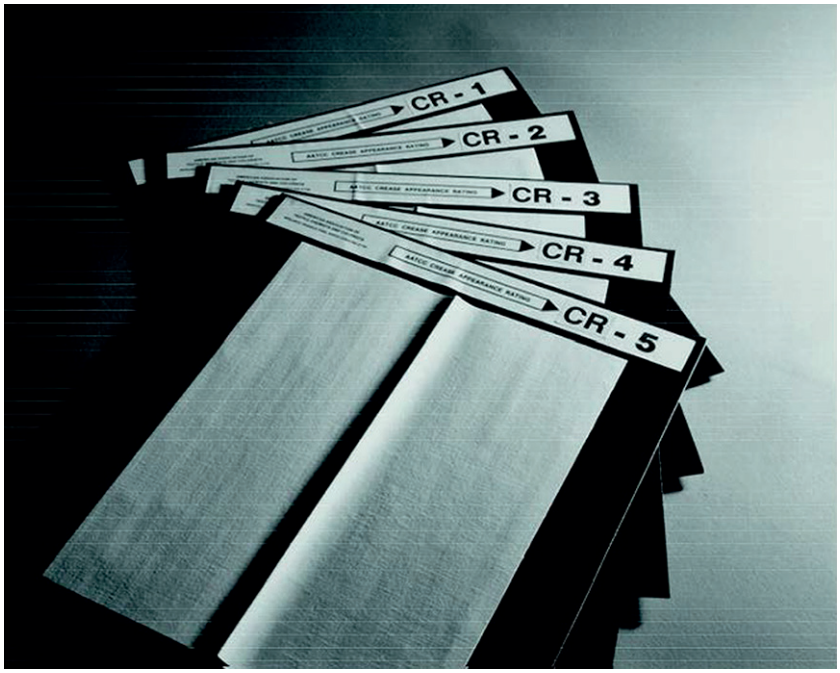





**Figure 3 — AATCC standard plastic crease replicas**



**5.5 AATCC photographic standards prepared for evaluating seam appearance** (single- and double-needle stitching), as shown in Figures 4 and 5.



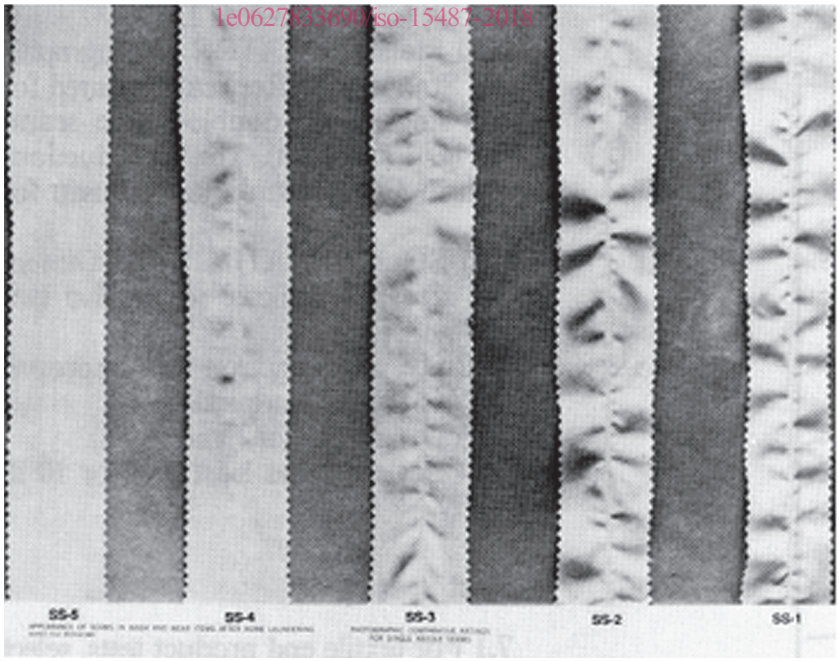



**Figure 4 — AATCC standard single-needle seam smoothness photograph**

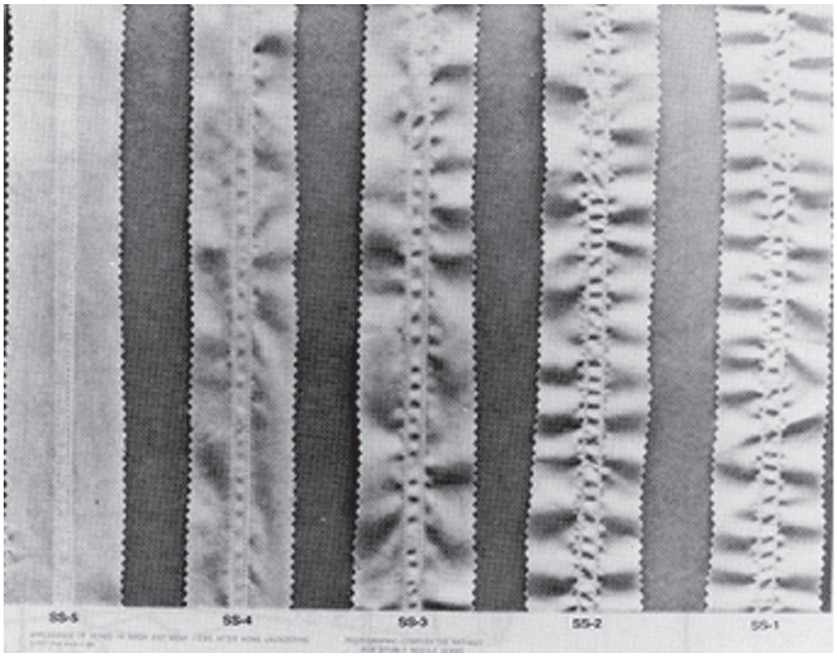



**Figure 5 — AATCC standard double-needle seam smoothness photograph**



**5.6 AATCC standard smoothness appearance replicas prepared for evaluating appearance**, as shown in Figure 6 (see also Annex A).



NOTE Details of the source of supply can be obtained from the Secretariat of ISO/TC 38/SC 2.



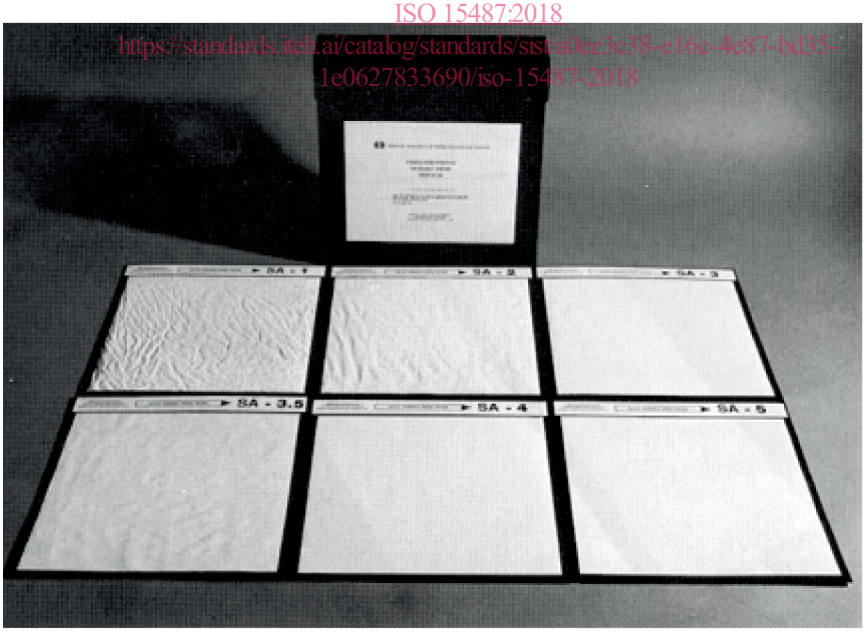



**Figure 6 — AATCC standard 3D smoothness appearance replicas**

## 6 Test specimens

### 6.1 For garments or textile end product tests

Select three items for testing.

### 6.2 For fabric tests

Prepare three test specimens, each measuring 38 cm × 38 cm, cut parallel to the length direction, pinked to prevent fraying and marked to indicate the length direction

## 7 Procedure

### 7.1 Washing and drying

Wash and dry the specimens in accordance with one of the procedures specified in ISO 6330, as agreed between the interested parties.

If required, repeat the selected washing and drying cycle four times to give a total of five cycles.

If dryer creases develop in specimens after any drying cycle except the last, they shall be rewet and an attempt made to remove the creases prior to additional washing and drying. No attempt to remove wrinkles or creases shall be made after the fifth cycle of drying.

### 7.2 Conditioning

Condition the test specimens for 4 h in the standard atmosphere specified in ISO 139, by hanging on a hanger, straightening and smoothing facings, seams, etc.

### 7.3 Observation



Three observers shall rate each treated test specimen independently, as follows:

a) The overhead fluorescent light (5.2.1) shall be the only light source for the viewing board (5.2.3). All other lights in the room shall be turned off except when rating crease appearance. In that case, the floodlight with reflector and light shield (5.2.4), positioned as shown in Figure 2, is also required.



b) Fabrics shall be placed on to the viewing board. Garments and other end use items shall be placed on or close to the viewing board that, as far as possible, the observer views them in the spatial placement in which they are encountered in use.

c) The observer shall stand directly in front of the specimen, (120 ± 3) cm away from the board or, when relevant, from the manikin. It has been found that normal variations in the height of the observer above and below the arbitrary 1,5 m eye level have no significant effect on the grade given.