Textile Testing Standards: ISO, AATCC and ASTM Methods for Each Test

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In one paragraph

Textile testing standards are published test methods that tell a laboratory exactly how to measure one property of a fibre, yarn, fabric or garment, so that two laboratories testing the same cloth get results that can be compared. Three bodies write most of the methods named on specifications and test reports: ISO, the International Organization for Standardization, through its technical committee ISO/TC 38 Textiles; AATCC, the American Association of Textile Chemists and Colorists, whose methods concentrate on colour fastness, wet testing and chemical analysis; and ASTM International, whose Committee D13 on Textiles covers physical properties. Most common tests have an ISO method and an AATCC or ASTM counterpart: colour fastness to washing is ISO 105-C06 or AATCC TM61, shrinkage is ISO 5077 (with the washing procedures of ISO 6330) or AATCC TM135, fabric tensile strength is ISO 13934-1 or ASTM D5035 by the strip method and ISO 13934-2 or ASTM D5034 by the grab method, pilling is ISO 12945 or ASTM D3512, fibre content is ISO 1833 or AATCC TM20A, and pH is ISO 3071 or AATCC TM81. National bodies adopt many of these under their own prefixes: BS EN ISO in Britain, IS/ISO in India, and GB/T numbers of China’s own. The table below pairs over thirty tests with their methods and links the site’s record of each standard where one is published.

At a glance

Textile testing standards at a glance: which standard for which test

Test	ISO (TC 38)	AATCC	ASTM (D13)
Conditioning before testing	ISO 139	—	D1776/D1776M
Colour fastness to washing	ISO 105-C06 (domestic and commercial laundering); ISO 105-C10 (soap or soap and soda)	TM61 (accelerated laundering)	—
Colour fastness to rubbing (crocking)	ISO 105-X12	TM8 (crockmeter)	—
Colour fastness to light	ISO 105-B02 (xenon arc)	TM16.3 (xenon arc)	—
Colour fastness to perspiration	ISO 105-E04	TM15	—
Colour fastness to water	ISO 105-E01	TM107	—
Grading colour change and staining	ISO 105-A02 and ISO 105-A03 (grey scales)	EP1 and EP2 (gray scales)	—
Dimensional change (shrinkage) in washing	ISO 5077, with the procedures of ISO 6330 and the marking of ISO 3759	TM135 (fabrics), TM150 (garments)	—

Test	ISO (TC 38)	AATCC	ASTM (D13)
Skew and bow	—	TM179 (skew change after laundering)	D3882
Smoothness after laundering	ISO 7768	TM124	—
Tensile strength, strip method	ISO 13934-1	—	D5035
Tensile strength, grab method	ISO 13934-2	—	D5034
Tear strength	ISO 13937-1 (Elmendorf), -2 (trouser), -3 (wing), -4 (tongue)	—	D1424 (Elmendorf), D2261 (tongue)
Bursting strength	ISO 13938-1 (hydraulic), ISO 13938-2 (pneumatic)	—	D3786/D3786M (diaphragm), D6797 (ball burst)
Seam strength and seam slippage	ISO 13935-1 and -2 (seam strength), ISO 13936-1 to -3 (slippage)	—	D1683/D1683M
Pilling	ISO 12945-1 (pilling box), -2 (modified Martindale), -3 (random tumble), -4 (visual assessment)	—	D3512/D3512M (random tumble), D3511/D3511M (brush), D4970/D4970M (Martindale)
Abrasion resistance	ISO 12947-1 to -4 (Martindale)	—	D4966 (Martindale), D4157 (oscillatory cylinder), D3884 (rotary platform, a guide)
Fibre identification	ISO/TR 11827	TM20	D276 was withdrawn in 2021
Fibre content of blends	ISO 1833-1 and its parts for each fibre mixture	TM20A	D629 was withdrawn in 2024
pH of the water extract	ISO 3071	TM81	—
Formaldehyde	ISO 14184-1 (free and hydrolysed), ISO 14184-2 (released)	TM112 (released, sealed jar)	—
Fabric weight (GSM)	ISO 3801 (woven fabrics)	—	D3776/D3776M
Ends and picks per unit length	ISO 7211-2	—	D3775
Thickness	ISO 5084	—	D1777
Air permeability	ISO 9237	—	D737
Water repellency (spray test)	ISO 4920	TM22	—
Water penetration (hydrostatic pressure)	ISO 811	—	—
Oil repellency	ISO 14419	TM118	—
Yarn count (linear density)	ISO 2060	—	D1907/D1907M
Yarn breaking force	ISO 2062	—	D2256/D2256M
Burning behaviour of fabrics	ISO 6940 (ease of ignition), ISO 6941 (flame spread)	—	D1230 (apparel textiles)
Visual inspection and grading of fabric	—	—	D5430

Test	ISO (TC 38)	AATCC	ASTM (D13)
Sampling a lot for inspection (AQL)	ISO 2859-1	—	—

Key figures and their sources

- ISO: ISO/TC 38 Textiles (scope, secretariat, counts and subcommittees), its catalogue of standards and the catalogue pages of each ISO standard linked above (abstract, edition, stage and committee), and ISO stage codes.
  Source: ISO/TC 38 Textiles (iso.org)

Revision questions

The questions readers ask most, with the article's own answer.

What are the main textile testing standards?

The methods of ISO (ISO/TC 38 Textiles), AATCC and ASTM (Committee D13). Common examples are the ISO 105 colour fastness series, ISO 5077 with ISO 6330 for shrinkage, ISO 13934 for tensile strength, ISO 12945 for pilling, ISO 1833 for fibre content and ISO 139 for conditioning, with AATCC TM61, TM8 and TM135 and ASTM D5034, D3512 and D3776 as their American counterparts.

What are the ISO test methods for textiles?

There is no single ISO textile testing standard. ISO/TC 38 and its subcommittees had 456 published standards on 11 October 2026, a count that includes updates, most of them test methods, from ISO 139 (conditioning atmospheres) to the ISO 105 colour fastness series with its 94 current parts.

What are AATCC test methods?

The standards of the American Association of Textile Chemists and Colorists, designated TM for test methods, EP for evaluation procedures and LP for laboratory procedures, then a number and a year, such as AATCC TM61-2013e(2020)e2. They concentrate on colour fastness, wet testing and chemical analysis, and are sold through the AATCC store.

What is the difference between ISO 105-C06 and AATCC 61?

Both test colour fastness to laundering, but they are built differently. ISO says one single (S) test of ISO 105-C06 closely approximates one laundering and one multiple (M) test up to five; AATCC says one 45-minute test of TM61 roughly approximates five home launderings.

Which standards are used for garment testing?

The fabric methods above, plus ISO 5077 or AATCC TM150 for the dimensional change of garments, ISO 13935 and ISO 13936 or ASTM D1683/D1683M for seams, ASTM D5430 for inspecting fabric and ISO 2859-1 for sampling a lot. The buyer’s protocol, and laws such as 16 CFR Part 1610 in the United States, set the results the garment must reach.

Is there a free PDF of the ISO textile testing standards?

Not of the full texts, which ISO and its national members sell. ISO’s catalogue page for each standard gives its scope, edition and status free, and the tables on this page are a reference list of the methods, their counterparts and their current editions that can be printed and kept.

Test yourself

Ten questions on this topic. Answer them without looking, then check on the last page.

1. Which ASTM committee covers textiles, and when was it formed?

2. When was ISO's textile committee ISO/TC 38 created, and which body holds its secretariat?
3. In the ISO 105 colour fastness series, which part letter covers washing and laundering?
4. In an ASTM designation such as D5034-21(2025), what do 21 and (2025) mean?
5. On a grey scale for colour fastness, what do grade 5 and grade 1 mean?
6. Why does AATCC TM15 use only acid perspiration?
7. A fabric marked at 50.0 cm measures 48.2 cm lengthwise after washing and drying. What is its length shrinkage?
8. Why does ASTM warn that there is no simple relationship between grab and strip tensile results?
9. Why does the ISO 4920 spray test not predict rain penetration?
10. What fabric weight does a 100 cm² disc weighing 1.52 g indicate?

Answers

Each answer is stated in the article; the section to read again is named after it.

1. **Committee D13 on Textiles, formed in 1914.**
   See: Who writes textile testing standards › ASTM Committee D13 on Textiles
2. **1947; SAC, China's national standards body.**
   See: Who writes textile testing standards › ISO/TC 38 Textiles
3. **C.**
   See: How to read a textile standard number
4. **21 is the year of the last revision; 2025 is the year of the last reapproval.**
   See: How to read a textile standard number
5. **Grade 5 means no change or no staining; grade 1 the most.**
   See: Colour fastness standards: ISO 105 and AATCC
6. **Committee work that correlated with limited field studies led AATCC to drop the alkaline test.**
   See: Colour fastness standards: ISO 105 and AATCC
7. **3.60%.**
   See: Shrinkage: dimensional change standards
8. **A grab specimen is helped by the yarns beside the ones gripped.**
   See: Strength tests: tensile, tear, burst and seams
9. **It does not measure water passing through the fabric.**
   See: Conditioning, construction and fabric properties
10. **152 g/m².**
    See: Conditioning, construction and fabric properties

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