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Helping our world work better

ASTM Textile Standards Supporting the Fabrics of Our World

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100+ Years

Committee D13 has helped ensure the quality, safety, and consistency of the textiles found in our clothing, home furnishings, vehicles, cell phones, and more, as well as their international trade.

ASTM International technical committees highlighted in this piece include:

D13 on Textiles

D35 on Geosynthetics

F15 on Consumer Products

F18 on Electrical Protective Equipment for Workers

F23 on Personal Protective Clothing and Equipment

ASTM Textiles Standards: Supporting the Fabrics of our World

Textiles date back to prehistoric times when plant and animal fibers were first used to make clothing. Today, textiles are a trillion-dollar industry, the largest employer in the world. Textiles can be found in our clothing, home furnishings, vehicles, cell phones, and more. And, for more than a century, standards from ASTM committees, beginning with Committee D13 on Textiles, have helped ensure the quality, safety, consistency of textiles, and the international trade of textile products.

Global Work

D13 has over 600 members from more than 37 countries, including manufacturers, retailers, consumers, government officials, and many more. The committee's 350 standards are globally recognized for market relevance and high quality.

Broadly Applicable

These standards apply to a broad array of textiles, including both natural and synthetic textiles used for everything from products to clothing. The standards serve as a foundation for understanding performance, properties, purposes, and more.

Responsive

Smart textile task groups are focusing on possible standards for terminology, data security, and market research.



A Century of Leadership in Textiles Standards (D13)

Committee D13 began work during World War I when cotton was in high demand by manufacturers who needed more durable cloth bags for their products. By 1916 these bags were the focus of the first D13 standards: tests for the “strip-and-grip” tensile strength of cotton. Additional subcommittees formed in 1918 to research various aspects of the textile industry.

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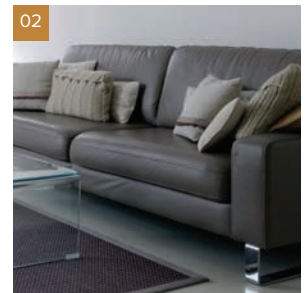
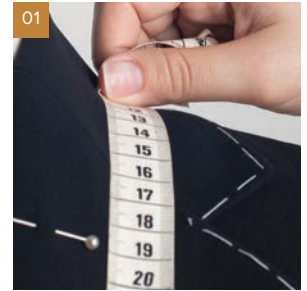
One of the most important and widely used D13 standards is the practice for conditioning and testing textiles (D1776), developed by Subcommittee D13.51 on Conditioning, Chemical, and Thermal Properties. The procedure helps determine how reliable and consistent a product is, particularly with regard to how sensitive fabrics and fibers are to humidity. By conditioning according to the standard, a manufacturer can be assured of reproducible results.

Another significant standard is D5489, Guide for Care Symbols for Care Instruction on Textile Products. Care labels, commonly found on clothing and fabric products, give details about laundering and heat exposure using globally acknowledged symbols.

Two other D13 subcommittees are also supporting manufacturers and consumers:

- D13.55 on Body Measurement for Apparel Sizing is developing a standardized sizing chart for consumers as well as for key stakeholders such as the U.S. Department of Defense. The goal is to help ensure that garment sizes are consistent among manufacturers, brands, retailers, and clothing types.
- D13.63 on Home Furnishings has developed crucial standards (e.g., D3690, Performance Specification for Vinyl-Coated and Urethane-Coated Upholstery Fabrics – Indoor) that provide requirements for household textile products, ensuring safety and quality for users.

Committee D13 is responsive to market demands, a hallmark of the ASTM process. This is especially demonstrated through the work of new Subcommittees on Sustainability of Textiles (D13.40) and Smart Textiles (D13.50). The D13.50 subcommittee currently has task groups focused on possible standards for terminology and data security, as well as a market research group. Resulting standards will support emerging technology-integrated apparel and textile products.



01
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02
Subcommittee D13.63 on Home Furnishings has developed crucial standards that provide requirements for household textile products, helping to ensure safety and quality for users.



Standard D5489 Guide for Care Symbols for Care Instruction on Textile Products

Care labels, commonly found on clothing and fabric products, give details about laundering and heat exposure using globally acknowledged symbols.

Committee D13 has fostered the creation and growth of other ASTM committees.

Children's Products and Apparel (F15)

Committee F15 on Consumer Products is world-renowned for its leadership in setting standards that protect people worldwide, particularly children, from product-related injuries. Established in 1973, F15 now has more than 50 subcommittees (each focused on a particular product area) and about 1,000 members, including manufacturers, retailers, government officials, advocacy groups, consumers, and more.

The committee helps drive safety through guidelines and test methods aimed at preventing injuries related to areas such as choking, sharp edges, and toxins, as well

as some hazards related to textiles. These standards often include care and warning labels for products.

In particular, the specification for toy safety (F963) includes testing requirements for flammability and the compression of squeeze toys that contain fabrics. These tests are also part of the consumer safety performance specification for carriages and strollers (F833) and the consumer safety specification for bassinets and cradles (F2194), products that often contain fabric.

Another important textile-related standard is the safety specification for drawstrings on children's upper outerwear (F1816). This standard aims to reduce strangulation and other hazards associated with strings on children's clothing by forbidding drawstrings

for sizes 2T to 12. If the garment does have drawstrings, the visible length cannot exceed 3 inches when the fabric is pulled at full capacity.

Future F15 textiles-related standards may focus on nanotechnology and smart clothing. The committee is also looking at the possible effects of wearing technology as well as the potential of hazardous chemicals and perspiration causing electric shock.

03

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Keeping Children Safe

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04

F833, the performance specification for carriages and strollers, includes safety testing requirements.



Clothing for Healthcare Workers and Others (F23)

Since 1977, Committee F23 on Personal Protective Clothing and Equipment has helped ensure safety for millions of workers with standards for vapor protective suits, medical face masks, flame-resistant rainwear, and more.

The committee's 400 members come from many backgrounds, including laboratory technicians, manufacturers, producers, and workers themselves.

Two of the group's most significant standards are in healthcare:

- A pass/fail test that helps ensure that blood doesn't penetrate medical gowns (F1670), and
- A test that shows to what extent materials resist penetration from blood-borne pathogens (F1671).

These standards are often reviewed and updated in light of infectious disease threats such as Ebola and Zika. Notably, the importance of these standards was highlighted in 2016 on "60 Minutes," a U.S.-based weekly news program.

Protecting Electrical Workers (F18)

Since 1974, Committee F18 on Electrical Protective Equipment for Workers has been developing standards to help prevent accidents and injuries.

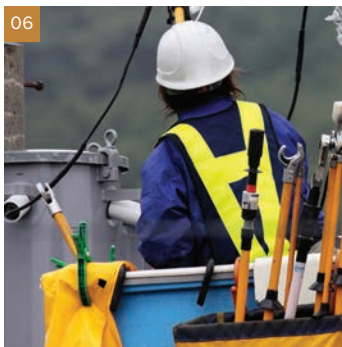
With more than 250 members and 11 subcommittees responsible for 45 standards, F18 has been a force behind protective wear that helps ensure safety against shock and fire. Most F18 members are electrical industry professionals who apply their expertise to help keep people safe on the job.

F18 works closely with utilities, equipment manufacturers, and other professionals to develop standards that benefit both the

electrical and textile industries. Some of the committee's most used standards fall under Subcommittee F18.65 on Wearing Apparel.

- The specification for flame-resistant and arc-rated textiles/apparel for electrical workers exposed to momentary hazards (F1506) defines garment manufacturing and labeling requirements and helps buyers find products with the needed protection ratings.
- The test method for determining the arc rating of materials for clothing (F1959/F1959M) measures the heat-transport response through a material, fabric, or fabric system when exposed to an electric arc, helping manufacturers create products that prevent burns and heat exposure.

Moving forward, the committee is looking to establish additional standards that will help manufacturers design protective wear that balances comfort, flexibility, and safety.



05
Committee F23 on Personal Protective Clothing and Equipment has helped ensure safety for millions of workers.

02
Committee F18 works closely with utilities to develop standards that benefit both the electrical and textile industries.

A Special Case: Geotextiles (D35)

Geosynthetics and geotextiles are in demand in the 21st century. These biodegradable and environmentally conscious products support erosion control and terrain preservation, particularly on sloped areas. These nontraditional materials work with soil to separate, filter, reinforce, protect, and drain.

For more than 30 years, Committee D35 members have developed standards for geotextiles, geogrids, geosynthetic erosion devices, geomembranes, and more.

Two test methods been particularly useful:

- The test method for tensile-strength deterioration of geotextiles by exposure to light, moisture, and heat in a xenon arc type apparatus (D4355) helps landscapers and others choose the right materials, and
- The test method for abrasion resistance of geotextiles (sand paper/sliding block method) (D4886) can be used as an acceptance test.



ASTM INTERNATIONAL

Helping our world work better

Over 12,000 ASTM standards operate globally. Defined and set by us, they improve the lives of millions every day.

Combined with our innovative business services, they enhance performance and help everyone have confidence in the things they buy and use – from the toy in a child’s hand to the aircraft overhead.

Working across borders, disciplines and industries we harness the expertise of over 30,000 members to create consensus and improve performance in manufacturing and materials, products and processes, systems and services.

Understanding commercial needs and consumer priorities, we touch every part of everyday life: helping our world work better.

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