association for contract textiles

Physical Properties
ACT Voluntary Performance Guidelines
Test Method Descriptions for Coated Fabrics – Outdoor

ACT Voluntary Performance Guidelines for Flammability and four aspects of coated fabric durability—Wet & Dry Crocking, Colorfastness to Light, Physical Properties, and Abrasion—make coated fabric specification easier.

To give architects, designers, and end-users a vast amount of performance information in a succinct visual way, ACT developed icons to indicate that a fabric meets or exceeds guideline requirements. Look for these Registered Certification Marks on ACT Member Company sampling to assure that the fabrics you specify perform up to contract standards and pass all applicable testing.

ACT Guidelines are based on a fabric's construction (woven, coated, knit), its intended application (upholstery, direct glue wallcovering/adhered panels, wrapped panels/upholstered walls, drapery), and where it will be used (indoor, outdoor). The application and usage parameters are set by the fabric supplier. All three parameters determine which set of ACT Voluntary Performance Guidelines applies.

This specific set of guidelines applies to coated fabrics for outdoor use as upholstery. "Coated Fabrics" typically consist of one or more layers of a film-former polymer such as vinyl, silicone or polyurethane supported by a fabric or similar substrate.

Test methods included in the Guidelines measure coated fabric performance under standard laboratory conditions and are intended to represent the most current test version. Note: Individual ACT Member product information may represent a different version of a test method depending on the date the product was introduced to market.

Important: These tests represent minimum requirements, which are subject to change without notice and may not reflect requirements or laws in all locations. See information and disclaimer on page 5.

Physical Properties — COATED FABRICS, OUTDOOR USE

Key factors in assessing overall durability of a coated fabric vary depending on the coated fabrics composition and construction.

ACT GUIDELINES

Upholstery

Adhesion of Coating
ASTM D751 (Peel Adhesion), 3 lbf/in minimum.

Peel Adhesion is the measurement of the force required to separate the coatings from the substrate.

Tear Strength – Knits & Woven Substrates
ASTM D2261, 4 x 4 lbs.
Or
ASTM D751 (Tongue Tear), 4 x 4 lbs.

Tear Strength – Nonwoven Substrates & Nonwoven Composites
ASTM D5733, 15 x 15 lbs.
Or
ASTM D751 (Trap Tear), 15 x 15 lbs.

Tear Strength is the measurement of stress exerted to rip the fabric under tension.

Breaking Strength
ASTM D751 (Grab Test) – 50 x 50 lbs. minimum.

Breaking Strength is the measurement of force exerted to pull a fabric apart under tension.

Seam Strength
ASTM D751 (Tack Tear) – Woven Substrates, 25 x 25 lbs., Knit Substrates, 30 x 25 lbs., Nonwoven Substrates & Nonwoven Composites, 35 x 35 lbs.

Seam Strength is the measurement of a fabric's resistance to tearing at needle punctures in a seam.

Flex Resistance

ASTM D2097 – 25,000 cycles, Visual evaluation for no appreciable surface crazing, cracking, whitening or delamination.

Flex Resistance is the measurement of a fabric's ability to withstand repeated flexing.

Mold & Mildew/Fungal Resistance

ASTM G21, zero growth

Mold & Mildew/Fungal Resistance is the evaluation of how well synthetic materials resist fungal growth.

Hydrolysis Resistance – Applicable to Polyurethanes Only

ISO 1419 (Tropical Test Method C), 10 weeks* Visual Evaluation for no cracking, peeling or delamination

Hydrolysis Resistance is the evaluation of a polyurethane coated fabric's ability to withstand exposure to extended periods of heat and humidity.

**Note: There is no direct correlation of testing weeks to years of service in the field.*

Stretch & Set

ACT has chosen not to establish a minimum requirement for this performance characteristic since the ability of a coated fabric to return to its initial state is strongly impacted by factors that are attributed to furniture construction and fabrication such as the density of foam. The SAE J855 test can be used to evaluate the stretch and set of a coated fabric; however, ACT suggests that you consult with both your fabric supplier and furniture manufacturer to determine if there are any potential issues.

TEST METHODS

ASTM D751 (Peel Adhesion)*

The ASTM D751 contains standard test methods for Coated Fabrics by the American Society of Testing and Materials (ASTM). The peel adhesion sections describe this test. The coating is separated from the fabric at one end of each specimen. The coating and the fabric are clamped separately and pulled in an attempt to further separate them. The number of pounds of force required to separate the coating from the fabric is measured and reported in pounds of force per linear inch.

* For complete technical details about ASTM D751: http://www.astm.org

ASTM D2261*

The ASTM D2261 is a test of the American Society of Testing and Materials (ASTM). This is the measurement of the lbs. of force required to tear coated fabrics with substrates that are knit or woven. A rectangular specimen, cut in the center of a short edge to form a two-tongued (trouser shaped) specimen, in which one tongue of the specimen is gripped in the upper jaw and the other tongue is gripped in the lower jaw of a tensile testing machine. The separation of the jaws is continuously increased to apply force to propagate a tear. The number of pounds required to cause a tear determines the rating.

* For complete technical details about ASTM D2261: http://www.astm.org

ASTM D751 (Tongue Tear)*

The ASTM D751 contains standard test methods for Coated Fabrics by the American Society of Testing and Materials (ASTM). The Tongue Tear sections describe this test. This is the measurement of the lbs. of force required to tear coated fabrics with substrates that are knit or woven. A rectangular specimen, cut in the center of a short edge to form a two-tongued (trouser shaped) specimen, in which one tongue of the specimen is gripped in the upper jaw and the other tongue is gripped in the lower jaw of a tensile testing machine. The separation of the jaws is continuously increased to apply force to propagate a tear. The number of pounds required to cause a tear determines the rating.

* For complete technical details about ASTM D751: http://www.astm.org

ASTM D5733*

The ASTM D5733 is a test of the American Society of Testing Materials (ASTM). This is the measurement of the lbs. of force required to tear coated fabrics with nonwoven substrates and composites. A specimen cut in the shape of an isosceles trapezoid cut at the smallest base of the trapezoid. The nonparallel sides of the trapezoid are clamped in parallel jaws of a tensile testing machine. The separation of the jaws is continuously increased to apply force to propagate a tear. The number of pounds required to cause a tear determines the rating.

* For complete technical details about ASTM D5733: http://www.astm.org

ASTM D751 (Trap Tear)*

The ASTM D751 contains standard test methods for Coated Fabrics by the American Society of Testing and Materials (ASTM). The Trap Tear sections describe this test. This is the measurement of the lbs. of force required to tear coated fabrics with nonwoven substrates and composites. A specimen cut in the shape of an isosceles trapezoid cut at the smallest base of the trapezoid. The nonparallel sides of the trapezoid are clamped in parallel jaws of a tensile testing machine. The separation of the jaws is continuously increased to apply force to propagate a tear. The number of pounds required to cause a tear determines the rating.

* For complete technical details about ASTM D751: http://www.astm.org

ASTM D751 (Grab Test)*

The ASTM D751 contains standard test methods for Coated Fabrics by the American Society of Testing and Materials (ASTM). The Grab Test sections describe this test. The fabric being tested is put into a machine with two clamps that grip the fabric on opposite sides. One clamp is stationary and the other moves away, applying tension until the fabric breaks or ruptures. This test is performed in both the machine and cross direction. The number of pounds required to cause a fabric to break or rupture determines the rating.

* For complete technical details about ASTM D751 (Grab Test): http://www.astm.org

ASTM D751 (Tack Tear)*

The ASTM D751 contains standard test methods for Coated Fabrics by the American Society of Testing and Materials (ASTM). The Tack Tear sections describe this test. The fabric being tested is put into a machine with two clamps that grip the fabric on opposite sides. The lower clamp is stationary; the upper clamp, with specified needles piercing the fabric, moves away in an attempt to tear the fabric at the needles. This test is performed in both the machine and cross direction. The number of lbs. force required to cause tearing determines the rating.

* For complete technical details about ASTM D751 (Tack Tear): http://www.astm.org

ASTM D2097*

The ASTM D2097 is a test of the American Society of Testing and Material (ASTM). The fabric being tested is put into a machine with two clamps that grip the fabric on opposite sides. The moving clamp flexes a crease in the fabric on each cycle to evaluate its tendency to crack. The machine runs at 500 cycles a minute for the specified period of time after which the specimens are examined visually. This test is performed in both the machine and cross direction. Visual evidence of crazing, cracking, whitening, or separation of coating from the fabric backing is unacceptable.

* For complete technical details about ASTM D2097: http://www.astm.org

ASTM G21*

The ASTM G21 is a test method of the American Society of Testing and Materials (ASTM), “Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.” The test material is exposed to a variety of fungal species and then incubated at a set temperature and humidity for 28 days. Sample is inspected for fungal growth at the end of the testing period.

* For complete technical details about ASTM G21: http://www.astm.org

ISO 1419

(Hydrolysis resistance) The ISO 1419 is a test of the International Organization for Standardization (Tropical Test Method C). Pre-cut samples are placed in an oven heated to 70 C (158 F) and at least 95 % relative humidity. The test pieces are placed in the oven so that they are free from strain, exposed to the free passage of air on both sides and not exposed to light. After 168 h (7 days) the test pieces are removed from the oven and visually evaluated for cracking, peeling or delamination. The number of weeks the pieces pass evaluation determines the rating.

IMPORTANT INFORMATION AND DISCLAIMERS REGARDING ACT'S VOLUNTARY PERFORMANCE GUIDELINES

As noted above, ACT's Voluntary Performance Guidelines ("Guidelines") and associated symbols ("Marks") are for information purposes only and are made available to help assist specifiers and end-users in evaluating certain characteristics of contract textiles.

Neither the Guidelines, nor the Marks constitute any promise, representation or warranty that a product or sample that bears or to which a Mark is referenced will in fact comply with applicable federal, state, or municipal laws, codes, rules and regulations concerning the intended use of such product ("Laws"), nor any assurance, representation or guarantee regarding or relating in any manner to the safety of any product or sample that bears or, to which a Mark is referenced.

Whenever appropriate, specifiers and end users should seek the advice of professionals or other knowledgeable persons to ascertain whether a product will in fact comply with applicable Laws.

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It is the responsibility of the contract textile vendor and/or the manufacturer (not ACT) to determine in all instances whether or not a textile meets each of the Standards to which a particular Mark is referenced.

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