



association  
for contract  
textiles

## Physical Properties

### ACT Voluntary Performance Guidelines

#### Test Method Descriptions for Woven Fabrics

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

All ACT Voluntary Performance Guidelines cover both woven and coated fabrics for indoor use. “Woven Fabrics” consist of two sets of yarns, warp and filling, formed by weaving, which is the process of interlacing these sets of yarns.

Test methods included in the Guidelines measure 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 4.

## Physical Properties



Key factors in assessing overall durability of a fabric vary depending on the fabric construction.

### ACT GUIDELINES

---

#### Upholstery

##### Pilling

ASTM D3511 (Brush Pill), Class 3 minimum

Or

ASTM D4970, (Martindale Tester), Class 3 minimum

*Pilling* is the formation of fuzzy balls of fiber on the surface of a fabric that remain attached to the fabric.

Aesthetic issues of pilling and fuzzing that sometimes occur on textile products do not impact the durability or functionality of the material. Laboratory testing provides some insight into the propensity for a textile to pill or fuzz; however, lab tests alone cannot predict field performance since they do not consider variables (e.g., care and maintenance, misuse, environment) encountered in the actual end-use application.

##### Breaking Strength

ASTM D5034 (Grab Test), 50 lbs. minimum in warp and weft

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

##### Seam Slippage

ASTM D4034, 25 lbs. minimum in warp and weft

*Seam Slippage* is the movement of yarns in a fabric that occurs when it is pulled apart at a seam.

---

#### Wrapped Panels and Upholstered Walls

##### Breaking Strength

ASTM D5034 (Grab Test), 35 lbs. minimum in warp and weft

---

#### Draperies

##### Seam Slippage

ASTM D434 using the D3597 modification for fabrics over 6 oz./sq. yard, 25 lbs. minimum in warp and weft.

## **TEST METHODS**

### **Pilling**

#### **ASTM D3511\***

The ASTM D3511 is a test method of the American Society of Testing and Materials (ASTM). This test utilizes nylon bristles to rub the surface of the test fabric for a specific amount of time. The number of pill balls are counted and given a 1 – 5 rating. Class 5 = no pilling, Class 1 = severe pilling.

\* For complete technical details about ASTM D3511: <http://www.astm.org>

#### **ASTM D4970\***

The ASTM D4970 is a test method of the American Society of Testing and Materials (ASTM). This test utilizes the Martindale Tester. The fabric being tested is rubbed face to face for a specified number of rubs/cycles. The pill balls are evaluated using a photographic visual standard for comparison and given a 1 – 5 rating.

\* Note: the ACT pilling guideline specifies 1,000 cycles/rubs.

\* For complete technical details about ASTM D4970: <http://www.astm.org>

### **Breaking Strength**

#### **ASTM D5034 (Grab Test)\***

The ASTM D5034 (Grab Test) is a test method of the American Society of Testing and Materials (ASTM). To evaluate, the fabric being tested is put into a machine that grips the fabric with two clamps. One clamp is stationary and the other moves away applying tension until the fabric breaks or ruptures. This test is performed in both the warp and weft directions. The number of pounds required to cause a fabric to break or rupture determines the rating.

\* For complete technical details about ASTM D5034 (Grab Test): <http://www.astm.org>

### **Seam Slippage Upholstery**

#### **ASTM D4034\***

The ASTM D4034 is a test method of the American Society of Testing and Materials (ASTM). To measure a fabric's ability to resist seam slippage, a seam is constructed to the following specifications:

Seam Allowance:	0.5 inches
Seam Type:	301 Lockstitch
Thread Type:	100% Nylon Bonded Monochord
Needle	Thread Size: 8
Bobbin	Thread Size: 5
Needle:	Size 22 Ball Point
Stitches per Inch:	7 ± 0.5

The sewn fabric is then clamped at opposing side of the seam. One clamp is moved away from the other applying tension at the sewn seam. This test is performed in both the warp and filling directions. The tension is increased until the seam separates to a specific distance. The number of pounds required to cause separation due to yarn slippage determines the rating.

\* For complete technical details about ASTM D4034: <http://www.astm.org>

### **Seam Slippage Drapery**

#### **ASTM D434\***

The ASTM D434 using the D3597 modification is a test method of the American Society of Testing and Materials (ASTM). To measure a fabric's ability to resist seam slippage, a seam is constructed to the following specifications:

Seam Allowance:	0.5 inches
Seam Type:	301 Lockstitch
Thread Type:	No. 24 – 4 “Z” Twist White Cotton
Needle:	Chrome-Plated 0.063-inch diameter
Stitches per Inch:	7 to 8

The sewn fabric is then clamped at opposing side of the seam. One clamp is moved away from the other applying tension at the sewn seam. This test is performed in both the warp and filling directions. The tension is increased until the seam separates to a specific distance. The number of pounds required to cause separation due to yarn slippage determines the rating.

\* For complete technical details about ASTM D434: <http://www.astm.org>



association  
for contract  
textiles

## Physical Properties ACT Voluntary Performance Guidelines Test Method Descriptions for Woven Fabrics

### 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.

Understand that the testing and standards ("Standards") referenced in the Guidelines are developed and promulgated by third parties not associated with ACT, and that these Standards often change or are supplemented by such third parties. Accordingly, the fact that a particular Standard is referenced in the Guidelines (and/or associated with any Mark) does not mean, nor is it intended to be a representation that Standard is the most current one.

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.

THE ASSOCIATION FOR CONTRACT TEXTILES EXPRESSLY DISCLAIMS LIABILITY TO ANY AND ALL PERSONS AND ENTITIES FOR PERSONAL INJURY, PROPERTY DAMAGE, AND ANY OTHER DAMAGE OF ANY KIND OR NATURE, (WHETHER OR NOT SUCH DAMAGES ARE DIRECT, INDIRECT, CONSEQUENTIAL OR COMPENSATORY) RESULTING FROM, OR IN ANY WAY RELATING TO THE GUIDELINES AND MARKS.

The marks , are Registered Certification Marks at the US Patent and Trademark Office and are owned by the Association for Contract Textiles, Inc.