

# 1. ACT Industry Survey on Durability

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## Background

The contract textile industry has struggled for years with the negative impact of ever-increasing abrasion resistance numbers. Recognizing that these numbers are believed to represent lifespan and durability for contract upholstery, the ACT Technical Committee surveyed members in October 2009 regarding actual end-use failures. The goal of the survey was to reach a better understanding of real-world upholstery performance.

Questions were carefully constructed to elicit a broad view of issues related to durability and to explore relationships among failures, durability and the ACT Voluntary Performance Guidelines. Those surveyed include ACT distributors, furniture companies, finishing companies and mills. Responses varied from concise to complex and were wide ranging. The following summary presents the majority view, but also includes answers that were unexpected and interesting.

## Survey Conclusions

Products are frequently eliminated from the selection process based solely on abrasion test results. If abrasion results were indicative of durability, we would expect to see extended life spans for fabrics with higher abrasion results, and more field failures for fabrics with lower results. In fact, this is not the case. Among members surveyed, there are very few abrasion claims or failures—especially considering the diverse market segments served, and their wide-ranging requirements.

The survey shows that surface abrasion testing is less relevant than other indicators of real world performance. Only seam slippage and pilling are failures mentioned frequently enough (see question six) to warrant ranking the answers as issues for wovens. It is interesting to note that there were no claims due to surface abrasion for coated upholstery products.

Upholstery durability is dependant on a host of broad and complex end-use conditions. Simplifying durability to a number achieved by surface abrasion testing has done a disservice to the design industry. The "wild cards" when assessing overall durability and lifespan of any upholstery are cleanability and abuse. No amount of double rubs can compensate for these issues.

The survey underscores the need for an overarching education campaign about upholstery durability, including the appropriate role of abrasion resistance testing. As a result, the ACT board accepted the challenge and charged the Technical Committee to research and develop new documents and materials for this purpose. The White Papers that the Technical Committee's recent research has produced are now online at our Website. The board encourages all ACT members—and the A&D community—to visit [www.contracttextiles.org](http://www.contracttextiles.org) and refresh their understanding about durability so they are better equipped to assess the potential lifespan of upholstery products.

### Participants

24	Principal Members
4	Associate Furniture Manufacturers
11	Industry Partners
5	Industry Individuals
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44	Total participants out of 89 members = 49%

### Survey Format

Where answers are ranked (1, 2, 3, etc.) this indicates that number one is the most frequent answer given by responders, number two is the next, etc.

## Actual Survey Results

### 1. If abrasion testing did not exist, how would you evaluate the durability of a product?

- Woven:
  1. Weight, content, construction, in addition to other physical properties currently in the ACT voluntary guidelines
  2. Field experience and past experience
  3. Develop some type of test for surface wear
  4. Cleanable
- Vinyl and other similar coated materials:
  1. Same as above
  2. Tests for scratching, puncture and stretch & set

### 2. What are the most important characteristics you seek when assessing a product for durability?

- Woven:
  1. ACT guidelines
  2. Weight, content and construction
  3. Cleanable
- Vinyl and other similar coated materials:
  1. Stretch & set, scratching, puncture, weight, content and construction
  2. ACT guidelines
  3. Cleanable

### 3. For the characteristics listed above, what tests if any do you use to support each?

- Woven:
  1. Wyzenbeek
  2. Pilling
  3. Seam slippage
  4. All other tests follow along
- Vinyl and other similar coated materials:
  1. Wyzenbeek
  2. Seam integrity
  3. Stretch & set
  4. Scratching

**4. For the following categories of durability, list the examples of end use applications for your products:**

- This survey question really didn't work. Although it was designed specifically to solicit end-use applications and not double-rub numbers, many respondents answered the question with abrasion numbers—and several answered with only abrasion numbers and no end-use applications.
- The primary end-use market of each responding company significantly skewed end-use applications listed. These answers ranged from dust ruffles and cornice boards to stadiums illustrating that they/we are trying to apply a general guideline to a wide range of applications.

**5. List your three major end use markets and for each category list performance characteristics that you seek beyond double rubs (and properties covered in current ACT guidelines):**

- Hospitality – cleanable, dynamic seam fatigue, dimensional stability, washable
- Healthcare – antimicrobial, antibacterial, cleanable, moisture barrier, hydrostatic
- Corporate – dynamic seam fatigue, cleanable, stain resistant

Others:

Institutional/Education – cleanable  
Outdoor – outdoor lightfast, weather resistant  
Stadium – stain resistant, cleanable

**6. What specific failures in the field lead to product claims for your company?**

- Woven:
  1. Seam Slippage – As previously discussed in technical committee meeting, slippage is most likely because of inadequate seam allowance. It was decided that raising the current ACT standard would not eliminate these situations.
  2. Pilling

Also mentioned (in alphabetical order): abrasion, abuse (hostile environment, rubbing against other objects, lack of proper maintenance), colorfastness to light, crocking, disintegration of fabric, flattening of pile, misuse (wrong application for fabric), pet damage, puckering, puddling, seat failures at front of seat, shrinkage/dimensional stability, snagging, staining, stretch & recovery, welt failures.
- Vinyl and other similar coated materials:  
(In alphabetical order): cold cracking, color discoloration & fading, defective products, delaminating, finish/embossing wearing off, improper cleaning, puncture wounds & ball point pens, scratching, scuffing, seam slippage, staining, stretch & set (sagging, puddling), topical contaminants, wrong application of fabric (vinyl must have stain resistant finish for certain healthcare applications).

**7. Do you have product claims and failures in the field due to the improper use of cleaning agents and disinfectants?**

- Woven: Approximately 3 out of 5 said yes.  
Seems to be heavily related to end-use applications – healthcare, hospitality and institutional more than corporate.
- Vinyl and other similar coated materials: Approximately 50% said yes.  
Again, seems to be heavily related to end-use applications – healthcare, hospitality, institutional...

**8. What are the most important field conditions other than cleaning that contributed to product failure?**

- Woven:
  1. Abuse – lack of maintenance, foot sitters, belts, food & drink, rubbing against other surfaces, pets, wet swimsuits, suntan lotion
  2. Inappropriate specification/application
  3. Improper/lack of cleaning
  4. Improper fabrication – stitchingAlso mentioned: improper finish applied, excessive sun exposure
- Vinyl and other similar coated materials:
  1. Abuse – spilling on specialty vinyls, scraping, snagging, bumping
  2. Improper/lack of cleaning
  3. Inappropriate specification/application
  4. Improper fabrication – lack of venting, foam selectionAlso mentioned: direct sunlight, puddling & stretching, delamination

**9. What warranties or guarantees does your company make regarding life span of product?**

- A variety of 1- to 5-year warranties and a few 10-year warranties are being offered. There are also a significant number of companies that do not have a written warranty at all.

**10. What do you consider as good performance life span for your products in the field?**

- Mills & principal members consider 6 years average to be a good life span, whereas furniture manufacturers look for 10 to 20 years.

**11. What fiber types would you consider to be the most durable?**

- Nylon
- Polyester

Also mentioned: polypropylene, wool, and then construction and finish.

**12. What coated upholstery types would you consider to be the most durable?**

- Vinyl

**13. Is ounce weight a component of durability?**

- Woven: Pretty close to an even split yes to no.
- Vinyl and other similar coated materials: Pretty close to an even split yes to no.

**14. Do you consider durability to cleaning agents and disinfectants in the design of some or all of your upholstery?**

- Woven: 2 to 1 said yes.
- Vinyl and other similar coated materials: 3 to 1 said yes.

**15. Additional comments from your company relative to this issue.**

Note: The comments below were organized by topic. Each bullet point represents a comment from an individual responder.

Abrasion failures are rare:

- We have rarely had fabric returned for abrasion failures regardless of the end-use or length of life.
- We see no field claims for abrasion.
- We have never had a fabric returned for abrasion failures.
- Fabric usually “wears out” because it is not well cared for.
- Our failures are much less about wear than they are about poor seaming by a manufacturer and user abuse in the field.

Inflated abrasion numbers and unreliability of test method:

- I am very concerned about competitive suppliers using unnecessarily high and unjustified abrasion results, which confuse specifiers and hurt our industry.
- Generally, Wyzenbeek tests to extremely high levels are a farce.
- The fact that companies market how many double-rubs each item gets as a sign of technical superiority places more emphasis on an unreliable test.
- Please continue working on achieving consistent abrasion test results from lab to lab.

General comments about durability:

- End-use conditions are much more important than initial abrasion test results in determining the durability of a fabric.
- Durability of an upholstery fabric must encapsulate all of the key physical parameters beyond Wyzenbeek (i.e., tensile tear, seam strength), but it must also take into account the sewing variables, the construction and quality of the chair, how well it is maintained in its end-use environment.
- It all comes down to educating the end users on all areas that contribute to the durability of the product, not just abrasion.
- It would be nice to see a classification of durability that includes more than just abrasion performance...such as thickness, weight, tear, weave design, seam integrity, colorfastness.
- It's not that abrasion resistance isn't an issue, it's just that the Wyzenbeek and Martindale are subjective and don't accurately predict performance in real-world applications.
- Our sales approach as an industry has largely distilled "durability" to Wyzenbeek double-rubs because it created a narrow, simple point of comparison. Sadly, it has diminished our expertise in the eyes of our customers, who have been inadvertently taught to raise the Wyzenbeek bar when they want a "heavier-wearing" fabric.

Cleanability:

- Resistance to cleaning agents (including bleach), fading and general overall appearance of the fabric must be worked into the durability equation.
- (Designers) believe/expect that any branded performance finished fabric is cleanable with bleach, regardless of fiber type.
- Durability of an upholstery fabric must include how well it is maintained in its end-use environment.
- In my mind, it would be ideal for fabrics to withstand the standard cleaning practices used in most healthcare facilities...mild solution of bleach and water.
- Fabric usually "wears out" because it is not well cared for. Dirt is the worst enemy of fabric.

Need to educate design community/strengthen industry credibility:

- We need to properly represent performance for credibility of our industry.
- Mistakenly, designers expect all branded performance finishes on fabric to have the same high durability, regardless of fiber type.
- It all comes down to educating the end users on all areas that contribute to the durability of the product, not just abrasion.
- In my view, we should teach the design community how to care for fabric, to expect different performance from different classes of fabrics, to specify appropriately for different applications, and most of all to trust...valued suppliers!

Manufacturing issues:

- Our field failures are much less about wear failures than they are about poor seaming by a manufacturer and failure of the goods to withstand abuse in the field.
- Fabric "failures" often occur because fabricators cut corners, and/or upholster poorly.