

TESTING AND TECHNICAL

Abrasion Testing

In the interiors fabric industry there are two different methods of testing that are typically used to measure a fabric's ability to withstand abrasion. One is known as the "Martindale" and the other is known as the "Wyzenbeek". Following are some practical guidelines for interpreting the numbers produced by these types of abrasion testing.

As a side note, in North America, abrasion results have become a competition of numbers where the more cycles a fabric withstands without noticeable wear, the more indestructible it is considered to be. In actuality, any number very much in excess of those noted below is moot in the real world.

MARTINDALE (ASTM D4966)

The Martindale abrasion test is an international standard and widely accepted throughout the world as a reliable means of determining a fabric's ability to withstand abrasion and pilling. It was developed for the express purpose of testing woven and knit fabrics. The Martindale is considered the test of choice in Europe and Asia. It is endorsed by the [International Wool Secretariat](#) and [Cotton Council International](#). It is also recognized by ACT ([Association for Contract Textiles](#)) and DFA (Decorative Fabrics Association). Although designers in North America are less familiar with the Martindale test, it is gaining recognition as a reliable test.

The Martindale is considered by many to be a more accurate measurement of "real life" use. The fabric is mounted flat and rubbed in a modified *figure-eight motion* with a piece of worsted wool as the abradant. The number of cycles that the fabric can withstand before showing an objectionable change in appearance is counted.

20,000 Martindale cycles = general commercial use

40,000 Martindale cycles = heavy duty commercial use

WYZENBEEK (ASTM D4157)

The Wyzenbeek abrasion test is used primarily in North America. The test was originally developed to determine the ability of automotive tires to withstand road abrasion. This abrasion testing method has been modified to test all types of materials against abrasion. In its various iterations, the test can be used to test clothing textiles, leather, upholstery fabric, automotive tires and floor covering.

Though considered a stringent test, the Wyzenbeek does not necessarily measure “real life” conditions. The fabric to be tested is stretched tight on a frame and then abraded *in the warp direction* with a piece of [#10 cotton duck fabric](#). A second specimen of the same fabric is abraded in the *filling direction*. The number of cycles before 2 yarn breaks occur or when “noticeable wear” appears is measured.

15,000 Wyzenbeek cycles = general commercial use

30,000 Wyzenbeek cycles = heavy duty commercial use

NOTE: These abrasion testing numbers are geared to commercial applications. For residential installations, the numbers may be lower without concern for upholstery performance or overall fabric durability. Common sense becomes an important factor.