

Abrasion Resistance

according to Martindale EN ISO 12947-2



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The load capacity or resistance of a fabric, or the suitability of a fabric as an upholstery material, is attempted to be defined by the "abrasion resistance cycles". These are intended to reflect the "service life" or the intended use. A simple list helps to get an overview:

	Soft Upholstery (Martindale)	Firm Upholstery (Martindale)
Private Use	10.000	15.000
Office Use	25.000	35.000
Public Transport	30.000	40.000

This test is based on a permanent "rubbing" of the test material against a (cotton) wool cloth, which is guided in irregular circular movements and under a precisely defined weight load. A test cycle consists of 5,000 cycles; after each cycle, it is checked whether a thread break has occurred or whether a significant optical change has resulted. If this is the case, the test is stopped and the value is noted as the result. This test is precisely standardized and carried out under EN ISO 12947.

So, the more abrasion cycles, the more durable the material. This assessment has largely become established as a decision criterion for many institutions and designers/decision-makers; and so, in many tenders, a minimum requirement of 100,000 abrasion cycles is found, although for extreme, daily use, fabrics with 30,000 to 40,000 cycles are already completely sufficient.

Many "users" are not aware that, for example, in addition to high abrasion cycles, sufficient seam slippage resistance should also be provided. The Martindale test is only a snapshot and is limited to a very small test area; in practice, the load on an upholstery cover is larger and far less intense.

Abrasion Cycles for Artificial Leather

Assessment of Specimen Damage:

Abrasion Cycles (Count)	Sample 1	Sample 2	Sample 3	Sample 4
100	1	1	1	1
200	2	2	2	2
300	2-3	2-3	2-3	2-3
500	2-3	2-3	2-3	2-3
700	2-3	2-3	2-3	2-3

Scale for the Assessment of Specimen Damage:

0	None	No change.
1	Very light	Gloss modification. No print abrasion (if present). No attack on surface coating.
2	Light	Color change. Print (if present) is partially or completely removed. Surface coating is not attacked.
3	Moderate	Surface coating is attacked.
4	Severe	Surface coating is worn away and the intermediate layer or foam layer is attacked.
5	Completely destroyed	Base fabric emerges.

For artificial leather, the standard DIN EN ISO 5470-2:2021-11 should generally be used, which represents a modified version of the general Martindale test. The difference lies in the use of an "abrasive" as a rubbing base (instead of the (cotton) wool cloth) – here, the "plastic or rubber coated material" encounters a "grained" friction surface (sandpaper). The result is thus much more meaningful than conducting a conventional Martindale test for hours or days.

The abrasion cycles set here start at 100, end at 700, and are then optically assessed (Class 0 – 5) after the end of the respective cycle!

These certificates are available for download for our main artificial leather collections Touch Basic and Mammut. The implementation of a test according to this series of standards is not mandatory; many suppliers refer to the textile standard EN ISO 12947 for artificial leather abrasion cycles.

