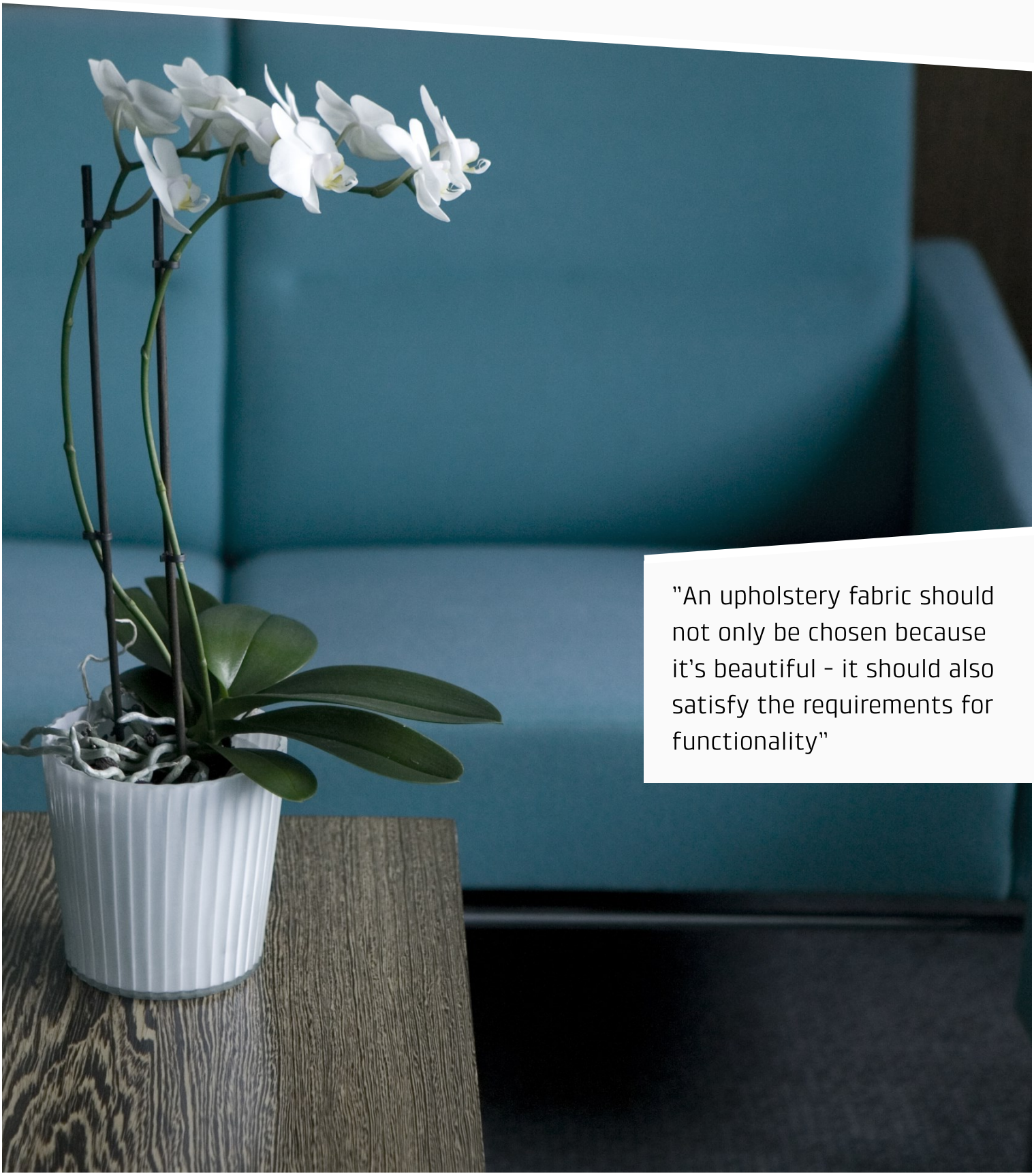
DANISH TECHNOLOGICAL INSTITUTE

Upholstery Fabric Classification: 2013

- a system for classification



"An upholstery fabric should not only be chosen because it's beautiful - it should also satisfy the requirements for functionality"

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Choose the Right Upholstery Fabric

Upholstery fabric that quickly wears out, gets more soiled and gets harder to keep clean than expected, could indicate a wrong choice of upholstery fabric. This may lead to irritation and frustration by the users; imply waste of materials and man power resulting in major financial losses.

The problem is well known among fabric manufacturers, furniture manufacturers and large-scale purchasers both in the public and the private sector. The practical knowledge about the impact on the upholstery fabric from the furniture construction, the place of use and the use intensity has simply been too limited.

The problems have often been that the fabric has had inadequate properties or the contrary that a fabric has been chosen with far too good properties. Under all circumstances, it has turned out to be a waste.

Upholstry Fabric Classification

In realization of the fact that it can be difficult to choose upholstery fabrics, the industry has used a classification system since 1980.

The system is an assessment system based on testing which enables a classification of the upholstery fabrics based on the type of upholstery used as well as how the piece of furniture is predictied to be used.

The experiences shows that the factors which have the largest impact on upholstery fabrics are:

- Soiling and options for cleaning
- Change of appearance and break-down due to abrasion

In addition
- Fading
- Fuzzy and “rubbed” fabric surfaces
- Seam slippage

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How the System Functions

The submitted samples will be tested for the following fields of application:

Private homes
- Rooms with low use intensity
- Rooms with normal use intensity

Public rooms and offices
- Hotel rooms, meeting rooms with low use intensity, hospital wards
- Sitting rooms in hospitals/nursing homes
- Banqueting rooms, college rooms
- Offices, staff rooms, meeting and lecture rooms, restaurants, canteens, cinemas, theatres, air planes
- Trains, busses, liners, hotel foyers, departure halls, cafeterias, schools, child care and youth centers

Furthermore, the samples will be assessed according to whether the upholstery is hard or soft. A piece of furniture will often have different upholstery in the back, seat and armrest. The hardest upholstery is deciding. Laboratory examinations will only include the properties relevant to the fabric/piece of furniture.

Inflammability

Danish Technological Institute, Textile is accredited to perform tests of ignitability and inflammability for upholstery fabrics, leather and upholstery materials e.g. with a view to export to Scandinavia, Great Britain and the USA or as documentation to the fire authorities.

How can the System Help?

The advantages are evident: It provides an essentially higher safety when selecting suitable upholstery fabrics whereby the following is obtained:

- Fewer or no complaints
- Expectations for service life are met
- Waste of materials and man power is avoided
- Expenses are reduced
- Competitiveness is improved

How to get Upholstery Fabrics Examined

Should you have questions on choosing upholstery fabrics or do you want us to test a fabric, please contact us on phone: +45 72 20 21 21 or textile@teknologisk.dk.

We can then inform you which tests are needed, how fast it can be executed and the price.

How can We Assist You?

We satisfy the requirements of companies for technical knowledge and innovation through research, development, training, consultancy and documentation. Our experts can advise and guide within the following areas:

- Textiles
- Clothing
- Laundry technology
- Upholstery fabrics
- Furniture
- Fire testing of upholstered furniture and mattresses
- Indoor climate and VOC emission

We also issue Oeko-Tex® certificates, which document that the products does not contain colorants and chemicals, which are harmful to consumers' health.

We advise on national and international standards and norms and on the development of materials and products. You can furthermore ask us to certify and document the properties of your products by tests.

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Fields of application / Properties	Private homes			
	Rooms with low intensity of use		Rooms with normal intensity of use	
Upholstery type	Soft	Firm	Soft	Firm
Abrasion resistance, number of cycles to end point	Min. 10.000	Min. 15.000	Min. 15.000	Min 25.000
Pilling and surface fuzzing	Min. 3-4*			
Seam slippage	Max. 5 mm			
Tearing resistance	Min. 40 N**			
Material content	Fiber composition in % to be declared (statutory)			
Soiling propensity	Min. 3-4*			
Colour fastness to light	Min. 5			
Colour fastness to rubbing Dry Wet	Min. 4 Min. 3-4*			
Colour fastness to water spotting	Min. 4-5*			
Colour fastness to shampooing Colour change	Min. 4			
Dimensional change in *** washing/dry cleaning	Max. ± ½ %****			
Colour fastness to washing*** Change in colour Staining	Min. 4 Min. 3-4*			
Colour fastness to dry-cleaning*** Change in colour	Min. 4			
Colour fastness to weathering*****	Min. 4			
Resistance to weathering***** (Tearing resistance after weathering)	Min. 30 N**			

Notes to the Classification Scheme

At assessment of fastness to abrasion, a figure is given which is the number of cycles on a Martindale instrument which the fabric resists.

***notes:**

* 3-4 means 3½, 4-5 means 4½

** N (Newton) is a unit of force, used to measure strength properties. 10 N corresponds to approx. 1 kg

*** Colour fastness to dry cleaning is only required for fabrics intended for use as detachable covers and which may be dry cleaned

**** Dimensional changes greater than ± ½% may be accepted, if the cover fits the furniture or cushion after washing or dry-cleaning

***** Resistance to weathering is only required for fabrics intended for use in garden furniture or other outdoor furniture

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Fields of application / Properties	Public areas and offices							
	Hotel rooms, conference rooms with low intensity of use, hospital wards		Sitting rooms in hospitals/nursing homes, reception and banqueting rooms, college rooms		Offices, staff rooms, meeting and lecture rooms, restaurants, canteens, cinemas, theatres, air planes		Trains, busses, liners, hotel foyers, departure halls, cafeterias, schools, child care and youth centers	
Upholstery type	Soft	Firm	Soft	Firm	Soft	Firm	Soft	Firm
Abrasion resistance, number of cycles to end point	Min. 10.000	Min. 15.000	Min. 15.000	Min. 25.000	Min. 25.000	Min. 35.000	Min. 30.000	Min. 45.000
Pilling and surface fuzzing	Min. 3-4*							
Seam slippage	Max. 5 mm							
Tearing resistance	Min. 40 N**							
Material content	Fibre composition in % to be declared (statutory)							
Soiling propensity	Min. 4							
Colour fastness to light	Min. 5							
Colour fastness to rubbing — Dry Wet	Min. 4 Min. 3-4*							
Colour fastness to water spotting	Min. 4-5*							
Colour fastness to shampooing — Colour change	Min. 4							
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Upholstery Fabric Classification: 2013

- List of Methods

Property	Method	Comments
Abrasion resistance	EN ISO 12947-2:1999+ EN ISO 12947-2/AC:2007	The test result is the lowest result of at least four determinations. End points: • Flat woven fabrics: Two broken threads • Fabrics with uncut pile: Two loops worn open • Knitted fabrics: One broken thread • Chenille fabrics: Chenille effect worn away to such a degree that the appearance is significantly impaired • Fabrics with cut pile or raised nap: Pile or nap layer worn away to visible ground fabric to such a degree that the appearance is significantly impaired • Synthetic suede: Surface structure changed to such a degree that the appearance is signifiantly impaired • All fabrics: A change in colour equal to step 3 of the grey scale EN ISO 20105-2:1997, if this occurs before one of the above mentioned end points is reached
Pilling and surface fuzzing	EN ISO 12945-2:2000	The final grade is the grade at 2000 rubs. 1-5 scale, 5 best grading.
Seam slippage	EN ISO 13936-2:2004	Loading to 180 N immediately followed by reduction of the load to 5 N and measuring of the residual seam opening
Tearing resistance of woven fabric	EN ISO 13937-1:2000+ EN ISO 13937-1/AC:2007	Elmendorf method.
Tearing resistance of coated fabric	EN ISO 4674-2:1999	Elmendorf method
Material composition / fibre content	EU Regulation no. 1007/2011 of 27 September 2011	Rules for labeling of textile products, inclusive of lists for textile fiber names in Annex I and Annex III. Furthermore, inclusive of methods for quantitative analysis of textile fiber mixtures given in Annex VIII
Soiling propensity	BS 4948:1994	1-5 scale, 5 best rating

Notes to the method list

What is an Abrasion number?

At assessment of fastness to abrasion, a figure is given which is the number of cycles on a Martindale instrument which the fabric resists.

Upholstery Fabric Classification: 2013

- List of Methods, continued

Property	Method	Comments
Colour fastness to light	EN ISO 105-B02:1999, method 2 + amd. A1:2002	1-8 scale, 8 best rating
Colour fastness to rubbing	EN ISO 105-X12:2002	1-5 scale, 5 best rating
Colour fastness to water spotting	SS 251250-1994	Change in colour only. 1-5 scale, 5 best rating
Colour fastness to shampooing	EN ISO 105-X12:2002 with shampoo SS 182410-1982	Wet rubbing with shampoo only. Change in colour only. 1-5 scale, 5 best rating
Dimensional change in washing and drying	EN ISO 5077:2008 Marking: EN ISO 3759:2011 Washing: ISO 6330:2012	Washable fabrics for detachable covers only. Washing and drying according to the manufacturer's care label
Dimensional change in dry cleaning	EN ISO 3175-1:2010, with commercial dry cleaning Marking: ISO 3759:2011	Fabrics for detachable covers only. Dry cleaning according to the manufacturer's care label
Colour fastness to washing	EN ISO 105-C06:2010, but modified, using the IEC reference detergent, A containing optical white (according to ISO 6330:2012 Annex J).	Washable fabrics for detachable covers only. 1-5 scale, 5 best rating. If the care label contains a warning against use of washing detergents with optical brighteners, then the procedures specified in EN ISO 105-C06:2010 are followed without any modifications.
Colour fastness to dry cleaning	EN ISO 105-D01:1996	Fabrics for detachable covers only. 1-5 scale, 5 best rating
Colour fastness to weathering	EN ISO 105-B04:1997, method 2	Only fabrics intended for use in garden furniture or other outdoor furniture. 1-8 scale, 8 best rating.
Weathering resistance	EN ISO 13937-1:2000+ EN ISO 13937-1/AC:2007 *or* EN ISO 4674-2:1999 and EN ISO 105-B04:1997	Only fabrics intended for use in garden furniture or other outdoor furniture. Elmendorf tearing resistance after exposure under conditions as specified for the determination of colour fastness to weathering

Contact

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