

## Services Directory

updated: January 2022

### A) Mechanical and Technological Research

#### 1. Imprints of surfaces

#### 2. Burning behavior

- |      |  |   |
|------|--|---|
| 2.1  | Burning behavior of building materials<br>5 samples (edge or surface ignition)                       | DIN 4102-1 building material class B2           |
| 2.2  | Ignition by a burner<br>5 samples (edge or surface ignition)   | DIN 53438 Teil 2 oder Teil 3                    |
| 2.3  | Horizontal method, edge ignition<br>5 samples length, crosswise each                                 | DIN 54333                                       |
| 2.4  | Automobile interior (5 samples)  | DIN 75200 (MVSS 302)                            |
| 2.5  | Automobile interior<br>5 samples length, crosswise each  | Guideline 95/28EG Appendix 4<br>ECE 118-Annex 6 |
| 2.6  | Ignitability of upholstered furniture<br>Ignition source: smouldering cigarette                      | DIN EN 1021 T1                                  |
| 2.7  | Burning behavior of curtains and drapes  | DIN EN 1102                                     |
| 2.8  | Measurement of flame spread properties<br>vertically oriented specimen<br>(edge or surface ignition) | DIN EN ISO 6941                                 |
| 2.9  | Burning behavior of protective gloves  | DIN EN 407                                      |
| 2.10 | Protection against heat and flame<br>(protective clothing)   | DIN EN ISO 15025                                |
| 2.11 | Determination of inflammability<br>vertically oriented specimen<br>(edge or surface ignition)        | DIN EN ISO 6940                                 |

#### 3. Thickness

- |     |                              |                                    |
|-----|------------------------------|------------------------------------|
| 3.1 | Thickness of textile fabrics | DIN EN ISO 5084; DIN EN ISO 9073-2 |
| 3.2 | incl. compressability        | DIN 53885                          |

#### 4. Differential Scanning Calorimetry

set temperature, melting point

<b>5.</b>	<b>Twisting</b>	
5.1	Untwist procedure	DIN EN ISO 2061
5.2	Slippage method	
<b>6.</b>	<b>Electrostatic behavior</b>	
6.1	Determination of electrical resistance	DIN 54345 T1
6.2	Measurement of surface resistivity	DIN EN 1149-1
6.3	Measurement of electrical vertical resistance	DIN EN 1149-2
<b>7.</b>	<b>Thread count wovens</b>	DIN EN 1049-2
<b>8.</b>	<b>Diameter of fibers</b>	
	Ocular micrometer - synthetic fibers	
<b>9.</b>	<b>Fiber fineness</b>	
	Vibroscope method	DIN EN ISO 1973
<b>10.</b>	<b>Fiber length</b>	
	Single fiber measurement	DIN 53808-1
<b>11.</b>	<b>Mass per unit area</b>	DIN EN 12127; DIN EN 29073-1
<b>12.</b>	<b>Yarn count</b>	
12.1	Skein method	DIN EN ISO 2060
12.2.	Short length method	DIN 53830 T3
12.3	Rate of yarn length	DIN 53862
12.4	Number of filaments	
<b>13.</b>	<b>Odor test</b>	VDA 270
<b>14.</b>	<b>Weave of fabric</b>	
<b>15.</b>	<b>Weight portion warp and weft</b>	DIN 53856
<b>16.</b>	<b>Hairiness of yarns</b>	comparison test
<b>17.</b>	<b>Infrared spectrum</b>	
<b>18.</b>	<b>Hook and loop fastener test</b>	VDA 230-210
<b>19.</b>	<b>Crease resistance</b>	
	Cylinder method	ENKA; method 3061 A
<b>20.</b>	<b>Crimp parameters</b>	
20.1	Number of crimps of single fibers	ASTM D3937-12 Option 1
20.2	Crimp parameters of textured filament yarns	DIN 53840-1, DIN 53840-2
<b>21.</b>	<b>Permeability of air</b>	DIN EN ISO 9237
<b>22.</b>	<b>Mesh density</b>	DIN EN 14971

<b>23. Dimensional change</b>	DIN EN ISO 5077
23.1 Laundering and drying	DIN EN ISO 6330
23.2 machine wash	DIN EN ISO 6330
23.3 tumble drying	DIN EN ISO 6330
23.4 Heating (hot air)	
<b>24. Upholstery fabrics for living area</b>	DIN EN 14465
24.1 Tensile strength	DIN EN ISO 13934-1
24.2 Tear strength	DIN EN ISO 13937-3
24.3 Slippage resistance	DIN EN ISO 13936-2
24.4 Abrasion resistance	DIN EN ISO 12947-2
24.5 Pilling behavior	DIN EN ISO 12945-2
24.6 Light fastness	DIN EN ISO 105-B02 ( method 2 )
24.7 Rubbing fastness	DIN EN ISO 105-X12
<b>25. Slippage behavior</b>	DIN EN ISO 13936-2 + 13936-1
<b>26. Pilling, Martindale method</b>	DIN EN ISO 12945-2, DIN EN ISO 12945-4
<b>27. Abrasion tests</b>	
<b>27.1 Martindale method</b>	
27.1.1 Specimen breakdown	DIN EN ISO 12947-2
27.1.2 Mass loss	DIN EN ISO 12947-3
27.1.3 Appearance change	DIN EN ISO 12947-4
27.1.4 Abrasion resistance of protective clothing	DIN EN 530
27.1.5 Abrasion resistance of protective gloves	DIN EN 388
27.1.6 Abrasion resistance of coated textiles	DIN EN ISO 5470-2
<b>27.2 Frank Hauser method</b>	according to DIN 53528
<b>27.3 Schopper method</b>	according to DIN 53863 T2
<b>28. Shrinkage of yarns</b>	
28.1 Water	according to replaced DIN 53866-T2
28.2 Hot air	according to replaced DIN 53866-T3
28.3 Hot air monofilament	according to DIN EN 13844
<b>29. Protective clothing</b>	DIN EN 388
29.1 Abrasion resistance	
29.2 Cut resistance	Section 6.2
29.3 Force breaking through	Section 6.5
29.4 Tear strength	
<b>30. Lustre from use dry and humid condition</b>	
<b>31. Spray test</b>	AATCC 22, DIN EN ISO 4920
<b>32. Staff-Test (fiber abrasion Zweigle G555)</b>	
<b>33. Stress-strain characteristic in compression</b>	according to DIN EN ISO 3386-1

<b>34.</b>	<b>Static punchure test CBR test</b>	DIN EN ISO 12236
<b>35.</b>	<b>Delamination strength</b>	
35.1	Delamination of fusible interlinings	DIN 54310
35.2	Test for separating layers of laminated fabrics	DIN 53530, according to replaced DIN 53357A
<b>36.</b>	<b>Irregularity</b>	
	Toennessen board (visual board for yarns and twists)	
<b>37.</b>	<b>Resistance to water penetration</b>	DIN EN ISO 811
<b>38.</b>	<b>Tear strength</b>	
38.1	Trouser-shaped tear test	DIN EN ISO 13937-2
38.2	Wing-shaped tear test	DIN EN ISO 13937-3
38.3	Tongue-shaped tear test	DIN EN ISO 13937-4
38.4	Trapezoid tear test	DIN 53859-5
38.5	Trapezoid tear test plastic foils	DIN 53363
38.6	Tongue-, trouser-shaped tear test	DIN EN ISO 4674-1
38.7	Tear strength protective clothing	DIN EN 388
38.8	Tear strength nonwovens	DIN EN ISO 9073-4
<b>39.</b>	<b>Bursting properties</b>	DIN EN ISO 13938-2
<b>40.</b>	<b>Elastic behavior</b>	
40.1	Yarns	
40.1.1	Repeated tension stresses between constant elongation limits	DIN 53835-2
40.1.2	Single strain between constant elongation limits	DIN 53835-3
40.2	Woven and knitted fabrics	
40.2.1	Single strain between constant elongation limits	DIN 53835-13
40.2.2	statical and irreversible elongation	according to replaced DIN 53360, PV3909
<b>41.</b>	<b>Tensile tests</b>	
<b>41.1</b>	<b>Yarn</b>	
41.1.1	Tensile strength and elongation	DIN EN ISO 2062
41.1.2	Knot tensile test	DIN 53842-1
41.1.3	Loop tensile test	DIN 53843-1
<b>41.2</b>	<b>Cord</b>	according to DIN EN ISO 2062 without elongation
<b>41.3</b>	<b>Woven fabrics</b>	
41.3.1	Strip method	DIN EN ISO 13934-1
41.3.2	Grab method	DIN EN ISO 13934-2
41.3.3	Seam tensile test	DIN EN ISO 13935-1, -2
<b>41.4</b>	<b>Nonwovens</b>	DIN EN 29073-T3



**13. Absorptivity**

13.1	Velocity of soaking water	DIN 53924
13.2	Water absorption	DIN 53923
13.3	TEGEWA drop test	
13.4	Drying time	internal method

**14. Detection of special damages, qualitative**

**15. Determination of melting point**

**16. Spray test**

AATCC 22, DIN EN ISO 4920

**17. Laundering**

Domestic washing and drying procedures

DIN EN ISO 6330

**18. Water and stain protection**

18.1	Spray test	AATCC 22, DIN EN ISO 4920
18.2	Water drop test according to Dupont	
18.3	Oil repellency	AATCC 118, DIN EN ISO 14419

**C) Color fastness**

<b>1.</b>	<b>Fastness to spotting: alkali</b>	DIN EN ISO 105-E06
<b>2.</b>	<b>Fastness to hot pressing (dry, humid, wet)</b>	DIN EN ISO 105-X11
<b>3.</b>	<b>Fastness to bleaching: sodium chlorite mild</b>	DIN EN ISO 105-N03
<b>4.</b>	<b>Fastness to bleaching: sodium chlorite severe</b>	DIN EN ISO 105-N04
<b>5.</b>	<b>Fastness to chlorinated water</b>	DIN EN ISO 105-E03
<b>6.</b>	<b>Fastness to hot water</b>	DIN EN ISO 105-E08
<b>7.</b>	<b>Fastness to bleaching: hypochlorite mild</b>	DIN 54034
<b>8.</b>	<b>Fastness to bleaching: hypochlorite severe</b>	DIN EN 20105-N01
<b>9.</b>	<b>Fastness to washing in presence of hypochlorite</b>	DIN 54016
<b>10.</b>	<b>Fastness to light</b>	Xenotest ALPHA LM High Energy
10.1	to artificial light	DIN EN ISO 105-B02
10.2	to artificial light at high temperature	DIN EN ISO 105-B06
10.3	to light of textiles wetted with artificial perspiration	DIN EN ISO 105-B07
<b>11.</b>	<b>Fastness to organic solvents</b>	DIN EN ISO 105-X05

<b>12.</b>	<b>Fastness to sea water</b>	DIN EN ISO 105-E02
<b>13.</b>	<b>Fastness to rubbing</b>	
13.1	Fastness to rubbing, dry and wet	DIN EN ISO 105-X12
13.2	Fastness to rubbing, Perchlorethylene, Acetone	DIN EN ISO 105-D02
<b>14.</b>	<b>Fastness to spotting: acid</b>	DIN EN ISO 105-E05
<b>15.</b>	<b>Fastness to artificial saliva</b>	BVL B 82.92-3, DIN 53160-1
<b>16.</b>	<b>Fastness to perspiration</b>	DIN EN ISO 105-E04, BVL B82.02-13, DIN 53160-2
<b>17.</b>	<b>Fastness to sublimation in storage</b>	DIN 54056
<b>18.</b>	<b>Fastness to dry heat</b>	DIN EN ISO 105-P01
<b>19.</b>	<b>Fastness to dry cleaning</b>	DIN EN ISO 105-D01
<b>20.</b>	<b>Fastness to washing</b>	
20.1	Fastness to washing, domestic and commercial laundering	DIN EN ISO 105-C06, -C08, -C09
20.2	Fastness to washing with soap	DIN EN ISO 105-C10
<b>21.</b>	<b>Fastness to water</b>	DIN EN ISO 105-E01
<b>22.</b>	<b>Fastness to water spotting</b>	DIN EN ISO 105-E07

### **Drawing up expert reports for claims and complaints**