

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11118-01-01 according to DIN EN ISO/IEC 17025:2005

Period of validity: 23.11.2017 to 22.11.2022

Date of issue: 06.07.2018

Holder of certificate:

**Ostthüringische Materialprüfgesellschaft für Textil und Kunststoffe mbH Rudolstadt
Breitscheidstraße 97, 07407 Rudolstadt**

Tests in the fields:

**physical-chemical and chemical analysis
of plastics and fibers, lacquers, colours, metal products
as well as wood and leather;
determination of elements in electrotechnical products;
thermoanalytical analysis of polymeric materials;
mechanical-technological, physical-chemical and chemical analysis as well as colour fastness
tests on fibers, yarns, textile fabrics and plastics;
processing, mechanical, thermal and electrical tests of plastics;
biological tests for determination of biocompatibility and antibacterial activity of plastics,
materials and textiles**

**Within the given testing field marked with *, the testing laboratory is permitted,
without being required to inform and obtain prior approval from DAkkS, the free choice of
standard or equivalent testing methods.**

**Within the given testing field marked with **, the testing laboratory is permitted,
without being required to inform and obtain prior approval from DAkkS, the modification,
development and refinement of testing methods.**

**The listed testing methods are exemplary. The testing laboratory maintains a current list of all test-
ing methods within the flexible scope of accreditation.**

Within the scope of accreditation marked with *, the testing laboratory is permitted,
without being required to inform and obtain prior approval from DAkkS, to use standards or
equivalent testing methods listed here with different issue dates.**

**The testing laboratory maintains a current list of all standards / equivalent examination procedures
within the flexible scope of accreditation.**

1 Physical-chemical and chemical analysis of consumer goods and toys as well as polymeric materials

1.1 Sample preparation ***

DIN EN 645 1994-01	Paper and board intended to come into contact with foodstuffs; preparation of a cold water extract
DIN EN 647 1994-01	Paper and board intended to come into contact with foodstuffs; preparation of a hot water extract
DIN EN 1811 2015-10	Reference test method for release of nickel from all post assemblies which are inserted into pierced parts of the human body and articles intended to come into direct and prolonged contact with the skin
DIN EN 71-9 2007-09	Safety of toys - Part 9: Organic chemical compounds - Requirements
DIN EN 71-10 2006-03	Safety of toys - Part 10: Organic chemical compounds - Sample preparation and extraction
SOP 2.5.L126 2001-06	House regulations for microwave digestion for the determination of trace elements
SOP 2.5.L188 2012-09	Oxidative combustion in a bomb calorimeter (under oxygen atmosphere)

1.2 Determination of organic substances and groups of substances by high-performance liquid chromatography (HPLC) with standard detectors (DAD Detector, FLD-Detector) **

DIN EN ISO 14184-2 2011-12	Textiles - Determination of formaldehyde - Part 2: Released formaldehyde (vapour absorption method) <i>(Deviation: HPLC determination after derivatisation with DNPH)</i>
DIN EN ISO 17226-1 2008-08	Leather - Chemical determination of formaldehyde content - Part 1: high performance liquid chromatography
DIN EN ISO 17226-3 2011-09	Leather - Chemical determination of formaldehyde content - Part 3: Determination of formaldehyde emissions from leather
DIN EN 717-3 1996-05	Wood-based panels - Determination of formaldehyde release - Part 3: Formaldehyde release by the flask method

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VDA 275 1994-07	Shaped components for car-interior - Determination of formaldehyde release - measuring procedure concerning to the modified flask method <i>(Deviation: Derivatisation with DNPH and determination by HPLC)</i>
DIN EN ISO 17234-1 2015-07	Leather - Chemical tests for the determination of certain azo dye colorants in dyed leathers – Part 1: Determination of certain aromatic amines derived from azo colorants
DIN EN ISO 17234-2 2011-06	Leather - Chemical tests for the determination of certain azo colorants in dyed leathers – Part 2: Determination of 4-aminoazobenzen
DIN EN 71-11 2006-0 1	Safety of toys - Part 11: Organic chemical compounds - Methods of analysis
DIN EN 14362-1 2012-04	Textiles - Methods for determination of certain aromatic amines derived from azo colorants - Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres
DIN EN 14362-3 2012-09	Textiles - Methods for determination of certain aromatic amines derived from azo colorants - Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene
Vdl-RL 03 1997-05	Determination of the formaldehyde concentration in water-soluble disperse dyes <i>(Deviation: Derivatization with DNPH and HPLC-DAD measurement)</i>
DIN EN 1541 2001-07	Paper and board intended to come into contact with foodstuffs - Determination of formaldehyde in an aqueous extract <i>(Deviation: Derivatisation with DNPH and HPLC-DAD measurement)</i>
BfR - Recommendation XXI (status 01.10.2014)	Determination of cleavable formaldehyde in rubber articles
SAA 2.5L215 (status 10-2015)	Determination of acetaldehyde in polyester samples by DNPH derivatisation and HPLC-DAD measurement in conjunction with ASTM F2013-10
DIN EN 13999-3 2007 + A1 2009-08	Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 3: Determination of volatile aldehydes

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GM/Opel GMW 15635 2012-08	Determination of aldehyde and ketone emissions from interior materials
BMW AA-0061 2014-02	Determination of the emission of formaldehyde from non-metallic materials and components by HPLC
DIN ISO 12219-3 2012-12	Interior air of road vehicles - Part 3: Screening method for the determination of the emissions of volatile organic compounds from vehicle interior parts and materials - Micro-scale chamber method <i>(Deviation: Determination of carbonyl compounds after adsorption on DNPH cartridges and determination with HPLC-DNPH after extraction)</i>
SOP 2.5L005 (status 2016-06)	Determination of caprolactam and cyclic oligomer content in polyamide by HPLC
FLTM BZ 156-01 2011-07	Determination of formaldehyde, aldehyde and ketone emissions from non-metallic components, parts and materials in the vehicle interior
VCS 1027, 2739 2004-5	Determination of formaldehyde emission from components in vehicle interiors
VW PV 3925 2009-06	Polymer materials - measurement of formaldehyde emission

1.3 Determination of organic substances and groups of substances by gas chromatography (GC) with standard detectors (FID detector, ECD-Detector) ***

VDA 277 1995-01	Non-metallic materials of automotive interiors - Determination of the emission of organic compounds
DIN EN 71-11 2006-01	Safety of toys - Part 11: Organic chemical compounds - Methods of analysis
SOP 2.5L095 (status 09-2015)	Determination of diethylene glycol (DEG), ethylene glycol (EG), isophthalic acid (IPA) and cyclohexanedimethanol (CHDM) in PET granules in conjunction with DIN EN 13130-7:2004-08
FLTM BZ 157-01 2011-03	Determination of organic emissions from non-metallic materials in vehicle interiors by headspace gas chromatography
VCS 1027, 2749 2004-05	Determination of organic emissions from non-metallic materials in vehicle interiors

VW PV 3341 Non-metallic materials of automotive interiors - Determination of the emission of organic compound

1.4 Determination of organic substances and groups of substances by gas chromatography with mass spectrometry (GC-MS) **

DIN EN ISO 17234-1 2015-07	Leather - Chemical tests for the determination of certain azo colorants in dyed leathers - Part 1: Determination of certain aromatic amines derived from azo colorants
DIN EN ISO 17234-2 2011-06	Leather - Chemical tests for the determination of certain azo colorants in dyed leathers - Part 2: Determination of 4-aminoazobenzene
DIN EN 71-11 2006-01	Safety of toys - Part 11: Organic chemical compounds - Methods of analysis
DIN EN 14362-1 2012-04	Textiles - Methods for determination of certain aromatic amines derived from azo colorants - Part 1: Detection of the use of certain azo colorants accessible with and without extracting the fibres
DIN EN 14362-3 2012-09	Textiles - Methods for determination of certain aromatic amines derived from azo colorants - Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene
DIN EN 62321-6 (VDE 00421-1-6) 2016-05	Determination of certain substances in electrotechnical products - Part 6: Polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography - mass spectrometry (GC-MS)
DIN EN 13130-4 2004-08	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 4: Determination of 1,3-butadiene in plastics
AfPS GS 2014:01 2014-08	Determination of polycyclic aromatic hydrocarbons (PAH) in polymers
SOP 2.5.L144 2015-09	Determination of phthalates in textiles and plastics
CPSC-CH-C1001-09.1 2009-03	Standard Operation Procedure for Determination of Phthalates (<i>Deviation: extraction with dichloromethane</i>)

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DIN EN 16453 2014-06	Pulp, paper and paperboard - Determination of phthalates in extracts from paper and paperboard; German version EN 16453:2014
DIN EN ISO 14389 2014-10	Textiles - Determination of the phthalate content - Tetrahydrofuran method <i>(Deviation: extraction with dichloromethane)</i>
DIN CEN ISO/TS 16181 2011-10; DIN SPEC 91181 2011-10	Footwear - Critical substances potentially present in footwear and footwear components - Determination of phthalates in footwear materials
SAA 2.5.L145 2014-07	Determination of selected organotin compounds in textiles and plastics
DIN EN 71-3 2014-12	Safety of toys - Part 3: Migration of certain elements Appendix G determination of organotin compounds by GC-MS
SAA 2.5L217	Determination of dimethylformamide in protective gloves
DIN CEN ISO/TS 16189 2013-12	Determination of dimethylformamide in protective gloves
DIN CEN ISO/TS 16186 2012-12	Footwear - Critical substances potentially present in footwear and footwear components - Test method to quantitatively determine dimethylfumarate (DMFU) in footwear materials
DIN EN 13130-3 2004-08	Materials and articles in contact with foodstuffs - Plastics substances subject to limitation - Part 3: Determination of acrylonitrile in food and food simulants
BVL B 82.02-8 2001-06	Analysis of consumer goods - Detection and determination of pentachlorophenol in consumer goods, particularly in leather and textiles <i>(Reference method) (Deviation: Extraction with K_2CO_3 solution)</i>
DIN 54232 2010-08	Textiles - Determination of the content of bonds based on chlorobenzene and chlorotoluene
DIN ISO 12219-3 2012-12	Interior air of road vehicles - Part 3: Screening method for the determination of the emissions of volatile organic compounds from vehicle interior parts and materials - Micro-scale chamber method

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VCS 1027, 2759	Quantification of specific volatile organic substances from non-metallic materials in vehicle interiors
VDA 278 2011-10	Thermal desorption analysis of organic emissions for the characterisation of non-metallic materials for automobiles

1.5 Determination of elements by atomic emission spectroscopy with inductively coupled plasma (ICP-OES) *

DIN EN ISO 11885 (E 22) 2009-09	Water quality - Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy (ICP-OES) (deviation: <i>matrix: toys, textiles and polymers, digestion with acid</i>)
DIN EN 71-3 2014-12	Safety of toys - Part 3: Migration of certain elements
CPSC-CH-E1001-08 2008-12	Standard Operation Procedure for the Determining Total Lead (Pb) in Children's Metal Products (including Children's Metal Jewellery)
CPSC-CH-E1003-09 2009-04	Standard Operation Procedure for the Determining Lead (Pb) in Paint and Other Similar Surface Coatings
DIN 54233-2 2014-07	Testing of textiles - Determination of metals - Part 2: Determination of extractable metals by hydrochloric acid
DIN 54233-4 2014-07	Testing of textiles - Determination of metals - Part 4: Determination of extractable metals by synthetic salivary solution
DIN EN 16711-1 2016-02	Textiles - Determination of metal content - Part 1: Determination of metals by microwave digestion
DIN EN 16711-2 2016-02	Textiles - Determination of metal content - Part 2: Determination of extractable metals by acidic artificial perspiration solution
DIN EN ISO 17072-1 2011-06	Leather - Chemical determination of the metal content - Part 1: Extractable metals (ISO 17072-1:2011)
DIN EN ISO 17072-2 2011-06	Leather - Chemical determination of the metal content - Part 2: Total metal content (ISO 17072-2:2011)

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DIN EN 1811
2015-10 Reference test method for release of nickel from all post assemblies which are inserted into pierced parts of the human body and articles intended to come into direct and prolonged contact with the skin

**1.6 Determination of elements by atomic absorption spectrometry
(graphite furnace - and flame AAS) in textiles and leather ***

DIN 54233-2
2014-07 Testing of textiles - Determination of metals -
Part 2: Determination of extractable metals by hydrochloric acid

DIN 54233-4
2014-07 Testing of textiles - Determination of metals -
Part 4: Determination of extractable metals by synthetic salivary solution

DIN EN 16711-1
2016-02 Textiles - Determination of metal content - Part 1:
Determination of metals using microwave digestion

DIN EN 16711-2
2016-02 Textiles - Determination of metal content - Part 2:
Determination of extractable metals by acidic artificial perspiration solution

DIN EN ISO 17072-1
2011-06 Leather - Chemical determination of metal content -
Part 1: Extractable metals (ISO 17072-1:2011)

DIN EN ISO 17072-2
2011-06 Leather - Chemical determination of metal content -
Part 2: Total metal content (ISO 17072-2:2011)

1.7 photometric methods ***

DIN EN ISO 14184-1
2011-12 Textiles - Determination of formaldehyde - Part 1:
Free and hydrolysed formaldehyde

DIN EN ISO 17226-2
2009-09 Leather - Chemical determination of formaldehyde content - Part 2:
Method using colorimetric analysis

DIN EN ISO 17075
2008-02 Leather - Chemical tests - Determination of chromium(VI) content

DIN EN ISO 17075-1
2017-05 Leather - Chemical determination of chromium(VI) content in leather - Part 1:
Colorimetric method

1.8 Ion chromatography ***

DIN EN ISO 10304-1 (D 20) 2009-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (<i>deviation: digestion solution by O₂-combustion</i>)
DIN EN 62321-3-2 VDE 0042-1-3-2 2014-10	Determination of certain substances in electrotechnical products - Part 3: Screening - Total bromine in polymers and electronics by Combustion - Ion Chromatography
DIN EN 71-3 2014-12	Safety of toys - Part 3: Migration of certain elements (Determination of Chromium(VI) by ion chromatography)

1.9 Further methods ***

DIN EN ISO 3071 2006-05	Textiles - Determination of pH of aqueous extract
DIN EN 62321-3-1 VDE 0042-1-3-1 2014-10	Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

2 Determination of elements in electrotechnical products

2.1 by atomic emission spectroscopy with inductively coupled plasma (ICP-OES) *

DIN EN 62321-5 VDE 0042-1-5 2014-10	Method for the determination of certain substances in electrotechnical products - Part 5: cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by AAS, AFS, ICP-OES and ICP-MS
DIN EN 62321-4 VDE 0042-1-4 2014-10	Method for the determination of certain substances in electrotechnical products - Part 4: mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS

2.2 by atomic absorption spectrometry (graphite furnace - and flame AAS) *

DIN EN 62321-5 VDE 0042-1-5 2014-10	Method for the determination of certain substances in electrotechnical products - Part 5: Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by AAS, AFS, ICP-OES and ICP-MS
DIN EN 62321-4 VDE 0042-1-4 2014-10	Method for the determination of certain substances in electrotechnical products - Part 4: mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS

3 Thermal analysis of polymeric materials ***

DIN EN ISO 11357-1 2010-03	Plastics - Differential scanning calorimetry (DSC) - Part 1: General principles (ISO 11357-1:2009)
DIN EN ISO 11357-2 2014-07	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and glass transition step height (ISO 11357-2:2013)
DIN EN ISO 11357-3 2013-04	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallisation (ISO 11357-3:2013)
DIN EN ISO 11357-6 2013-04	Plastics - Differential scanning calorimetry (DSC) - Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT) (ISO 11357-6:2008)
DIN EN ISO 11358-1 2014-10	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles (ISO 11358-1:2014)
DIN EN 728 1997-03	Polyolefin pipes and fittings - Determination of oxidation induction time
DIN 51004 1994-06	Thermal analysis (TA) - Determination of melting temperatures of crystalline materials by differential thermal analysis (DTA)
DIN 51006 2005-07	Thermal analysis (TA) - Thermogravimetry (TG) - Principles
DIN 51007 1994-06	Thermal analysis (TA) - differential thermal analysis (DTA) - Principles
VW PV 3927 1992-05	Thermogravimetry (TG) of polymers and elastomer - Determination: plasticiser, carbon

4 Mechanical-technical testing of textiles***

4.1 Mechanical-technical testing of fibre materials***

DIN 53808-1 2003-01	Testing of textiles - Determination of length of fibres by measuring of individual fibres
DIN 53843-2 1988-03	Testing of textiles - Loop tensile test for staple fibres

DIN EN ISO 1973 1995-12	Textiles - Determination of linear density - Gravimetric method and vibroscope method
DIN EN ISO 5079 1996-02	Textiles - Fibres - Determination of breaking force and elongation at break of individual fibres

4.2 Mechanical-technical testing of single and plied yarns***

DIN 53830-3 1981-05	Testing of textiles - Determination of linear density of single and plied yarns; simple yarns and plied yarns, textured yarns; short length method
DIN 53830-4 1981-05	Testing of textiles - Determination of linear density of single and plied yarns; elasto-yarns including core spun yarns from elastofibres; short length method
DIN 53834-2 1979-01	Testing of textiles - Simple tensile test for single and plied yarns in oven-dry state (withdrawn standard)
DIN 53835-1 1987-01	Testing of textiles - Tensile test for testing the elastic behaviour – Principles
DIN 53835-2 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied elastomeric yarns by repeated application of tensile load between constant extension limits
DIN 53835-3 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied yarns by a single application of tensile load between constant extension limits
DIN 53835-4 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied yarns by a single application of tensile load between constant force limit
DIN 53842-1 1976-04	Testing of textiles - Knot tensile test for single and plied yarns
DIN 53843-1 1992-11	Testing of textiles - Loop tensile test – Yarns
DIN EN ISO 2060 1995-04	Textiles - Yarn from packages - Determination of linear density (mass per unit length) by the skein method

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DIN EN ISO 2061
2015-12 Textiles - Determination of twist in yarns - Direct counting method

DIN EN ISO 2062
2010-04 Textiles - Yarns from packages - Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester

4.3 Mechanical-technical testing of textile fabrics*
(fabrics, nonwovens, knits, coated fabrics)**

DIN 53362
2003-10 Testing of plastics films and textile fabrics (excluding nonwovens), coated or not coated fabrics - Determination of stiffness in bending - Method according to Cantilever

DIN 53363
2003-10 Testing of plastic films - Tear test using trapezoidal test specimen with incision

DIN 53863-2
1979-02 Testing of textiles - Abrasion test methods for textile fabrics - Rotary abrasion test

DIN EN 1049-2
1994-02 Textiles - Woven fabrics - Construction - Methods of analysis - Part 2: determination of number of threads per unit length

DIN EN 12127
1997-12 Textiles - Fabrics - Determination of mass per unit area using small samples

DIN ISO 29073-3
1992-08 Textiles- Test method for nonwovens - Part 3: Determination of tensile strength and elongation

DIN EN ISO 2286-2
2017-01 Rubber- or plastics-coated fabrics - Determination of roll characteristics - Part 2: Methods for determination of total mass per unit area, mass per unit area of coating and mass per unit area of substrate

DIN EN ISO 2286-3
2017-01 Rubber- or plastic-coated fabrics - Determination of roll characteristics - Part 3: Method for determination of thickness

DIN EN ISO 3759
2011-08 Textiles - Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change

DIN EN ISO 5084
1996-10 Textiles - Determination of thickness of textiles and textile products

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DIN EN ISO 9073-4 1997-09	Textiles - Test methods for nonwovens - Part 4: Determination of tear resistance
DIN EN ISO 9237 1995-12	Textiles - Determination of permeability of fabrics to air
DIN EN ISO 12945-2 2000-11	Textiles - Determination of fabric propensity to surface fuzzing and to pilling - Part 2: Modified Martindale method
DIN EN ISO 12947-1 2007-04	Textiles - Determination of the abrasion resistance of fabrics by the Martindale method - Part 1: Martindale abrasion testing apparatus
DIN EN ISO 12947-2 2017-03	Textiles - Determination of abrasion resistance of fabrics by the Martindale method - Part 2: Determination of specimen breakdown
DIN EN ISO 12947-3 2007-04	Textiles - Determination of abrasion resistance of fabrics by the Martindale method - Part 3: Determination of mass loss
DIN EN ISO 12947-4 2007-04	Textiles - Determination of abrasion resistance of fabrics by the Martindale method - Part 4: Assessment of appearance change
DIN EN ISO 13934-1 2013-08	Textiles - Tensile properties of fabrics - Part 1: Determination of maximum force and elongation at maximum force using the strip method
DIN EN ISO 13937-2 2000-06	Textiles - Tear properties of fabrics - Part 2: Determination of tear force of trouser-shaped test specimens (single tear method)
DIN EN ISO 13937-3 2000-06	Textiles - Tear properties of fabrics - Part 3: Determination of tear force of wing-shaped test specimens (single tear method)
DIN EN ISO 13937-4 2000-06	Textiles - Tear properties of fabrics - Part 4: Determination of tear force of tongue-shaped test specimens (double tear test)

**5 Mechanical-technical testing of polymeric materials and components, leather
and textiles**

Type of test	Measurand / test parameters	Measuring range	smallest achievable measurement uncertainty	Characteristic test methods
Tension, pressure, bending	Pressure and tensile force	20 cN – 100 N 0,2 N – 100 N 1 N – 500 N	Class 0,5 and 1 (DIN EN ISO 7500-1)	DIN EN ISO 527 DIN EN ISO 604 DIN EN ISO 178

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Type of test	Measurand / test parameters	Measuring range	smallest achievable measurement uncertainty	Characteristic test methods
-quasi-static-		2 N – 1000 N 0,2 kN – 10 kN 0,4 kN – 20 kN 0,25 kN – 250 kN		DIN EN ISO 14125 DIN EN ISO 29073-3 DIN EN ISO 5079 DIN EN ISO 9073-4
	Alternation of length traverse up / down	0,5 mm – 50 mm 0 mm – 100 mm 0 mm – 500 mm 40 mm – 400 mm	Class 0,5 and 1 (DIN EN ISO 9513)	DIN EN ISO 13934-1 DIN EN ISO 13937-2,3,4 DIN 53363 DIN 53834-2
	Alternation of length extensometer	-2,5 mm – 25 mm 0 mm – 100 mm -10 mm – 0 mm -1 mm – 1 mm -2,5 mm – 2,5 mm -1 – 1 mm	Class 0,5 (DIN EN ISO 9513)	DIN 53835-1,2,3,4 DIN 53842-1 DIN 53843-1,2
Tension, pressure, bending -dynamic-	Pressure and tensile force	0,4 kN – 20 kN	Class 1	DIN EN ISO 6603
	Alternation of length piston stroke	0 mm – 300 mm		
Impact pendulum	Impact energy (Charpy)	0,5 J, 1 J, 2 J, 5 J, 15 J	Indication deviation < 0.5 % in relation to the potential energy (DIN 51222)	DIN EN ISO 179
	Impact energy (IZOD)	1 J, 2,75 J, 5,5 J		DIN EN ISO 180

DIN EN ISO 178 Plastics - Determination of flexural properties
2013-09

DIN EN ISO 179-1 Plastics - Determination of Charpy impact properties
2010-11 Part 1: Non-instrumented impact test

DIN EN ISO 180 Plastics - Determination of Izod impact strength
2013-08

DIN EN ISO 527-1 Plastics - Determination of tensile properties - Part 1: General principles
2012-06 (chapter 9 and 10 only)

DIN EN ISO 527-4 Plastics - Determination of tensile properties - Part 4:
1997-07 Test conditions for isotropic and anisotropic fibre-reinforced plastic

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	composites (chapter 9.6 only)
DIN EN ISO 604 2003-12	Plastics - Determination of compressive properties
DIN EN ISO 6603-2 2002-04	Plastics - Determination of puncture impact behaviour of rigid plastics - Part 2: Instrumented puncture test
DIN EN ISO 14125 2011-05	Fibre-reinforced plastic composites - Determination of flexural properties
DIN ISO 29073-3 1992-08	Textiles- Test method for nonwovens - Part 3: Determination of tensile strength and elongation
DIN EN ISO 5079 1996-02	Textiles - Fibres - Determination of breaking force and elongation at break of individual fibres
DIN EN ISO 9073-4 1997-09	Textiles - Test methods for nonwovens - Part 4: Determination of tear resistance
DIN EN ISO 13934-1 2013-08	Textiles - Tensile properties of fabrics - Part 1: Determination of maximum force and elongation at maximum force using the strip method
DIN EN ISO 13937-2 2000-06	Textiles - Tear properties of fabrics - Part 2: Determination of tear force of trouser-shaped test specimens (single tear method)
DIN EN ISO 13937-3 2000-06	Textiles - Tear properties of fabrics - Part 3: Determination of tear force of wing-shaped test specimens (single tear method)
DIN EN ISO 13937-4 2000-06	Textiles - Tear properties of fabrics - Part 4: Determination of tear force of tongue-shaped test specimens (double tear test)
DIN 53363 2003-10	Testing of plastic films - Tear test using trapezoidal test specimen with incision
DIN 53834-2 1979-01	Testing of textiles - Simple tensile test for single and plied yarns in oven-dry state (withdrawn standard)
DIN 53835-1 1987-01	Testing of textiles - Tensile test for testing the elastic behaviour - Principles

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DIN 53835-2 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied elastomeric yarns by repeated application of tensile load between constant extension limits
DIN 53835-3 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied yarns by a single application of tensile load between constant extension limits
DIN 53835-4 1981-08	Testing of textiles - Determination of the elastic behaviour of single and plied yarns by a single application of tensile load between constant force limits
DIN 53842-1 1976-04	Testing of textiles - knot tensile test for single and plied yarns
DIN 53843-1 1992-11	Testing of textiles - loop tensile test - yarns
DIN 53843-2 1988-03	Testing of textiles; loop tensile test for staple fibres

6 Colour fastness tests and material tests of plastics and textiles

6.1 Colour fastness tests ***

DIN EN ISO 105-B02 2014-11	Textiles - Tests for colour fastness; Part B02: Colour fastness to artificial light: Xenon arc fading lamp test
DIN EN ISO 105-B04 1997-05	Textiles - Tests for colour fastness; Part B04: Colour fastness to artificial weathering: Xenon arc fading lamp test
DIN EN ISO 105-B06 2004-07	Textiles - Tests for colour fastness; Part B06: Colour fastness and ageing to artificial light at high temperatures: Xenon arc fading lamp test
DIN EN ISO 105-C06 2010-08	Textiles - Tests for colour fastness; Part C06: Colour fastness to domestic and commercial laundering
DIN EN ISO 105-C10 2007-06	Textiles - Tests for colour fastness; Part C10: Colour fastness to washing with soap or soap and soda
DIN EN ISO 105-D01 2010-10	Textiles - Tests for colour fastness; Part D01: Colour fastness to dry cleaning
DIN EN ISO 105-E01 2013-06	Textiles - Tests for colour fastness; Part E01: Colour fastness to water
DIN EN ISO 105-E02 2013-06	Textiles - Tests for colour fastness; Part E02: Colour fastness to sea water

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DIN EN ISO 105-E04 2013-08	Textiles - Tests for colour fastness; Part E04: Colour fastness to perspiration
DIN EN ISO 105-E07 2010-08	Textiles - Tests for colour fastness; Part E07: Colour fastness to spotting: water
DIN EN ISO 105-X12 2016-11	Textiles - Tests for colour fastness; Part X12: Colour fastness to rubbing
DIN EN 20105-A02 1994-10	Textiles - Tests for colour fastness; Part A02: Grey scale for assessing change in colour
DIN EN 20105-A03 1994-10	Textiles - Tests for colour fastness; Part A03: Grey scale for assessing staining
DIN 53160-1 2010-10	Determination of the colour fastness of articles for common use - Part 1: Test with artificial saliva
DIN 53160-2 2010-10	Determination of the colour fastness of articles for common use - Part 2: Test with artificial sweat
BVL B 82.10-1 2011-12	Determination of articles in common use; Test of coloured children toys to artificial saliva and sweat
VDA 75202 2001-08	Colour fastness and ageing to artificial light at high temperatures: Xenon-arc fading lamp test

6.2 Material tests and artificial weathering of plastics and textiles ***

DIN EN ISO 1172 1998-12	Textile-glass-reinforced plastics - prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content - calcination methods (here method A: Determination of the textile-glass content)
DIN EN ISO 3451-1 2008-11	Plastics - Determination of ash - Part 1: General methods (here: method A: direct burn up)
SAA 3.5V029 2015-12	Determination of the residue on ignition of plastics
DIN EN ISO 4892-2 2013-06	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps
DIN 53236 2018-02	Colouring materials - Conditions of measurement and evaluation for the determination of colour differences for paint coatings, similar coatings and plastics

DIN 75220 Ageing of automotive components in solar simulation units
1992-11

**6.3 Determination of the fogging behaviour of trim materials in the interior of automobiles
by gravimetric and photometric methods ***

DIN 75201 Determination of the fogging characteristics of trim materials in the interior
2011-11 of automobiles

DIN EN ISO 17071 Leather - Physical and mechanical tests - Determination of fogging
2011-12 characteristics

ISO 6452 Rubber- or plastics-coated fabrics - Determination of fogging characteristics
2007-06 of trim materials in the interior of automobiles

VW PV 3015 Non-metallic materials of the interior of automobiles
1994-05 Determination of the condensable components

GMW 3235 Fogging Characteristics of Trim Materials
2016-08

SAE J 1756 Determination of the Fogging Characteristics of Interior Automotive Materials
2006-08

VOLVO STD 420-0003 Fogging
2014-06 Organic Materials

7 Testing of processing, thermal and electrical properties of plastics ***

7.1 Preparation of test specimens and determination of processing properties of plastics ***

DIN EN ISO 1133 Plastics - Determination of the melt mass-flow rate (MFR) and the
2005-09 melt volume-flow rate (MVR) of thermoplastics (withdrawn standard)

DIN EN ISO 1133-1 Plastics - Determination of the melt mass-flow rate (MFR) and
2012-03 melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method

DIN EN ISO 1133-2 Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-
2012-03 flow rate (MVR) of thermoplastics - Part 2: Method for materials sensitive
to time-temperature history and / or moisture

DIN EN ISO 1622-2 Plastics - Polystyrene (PS) - moulding and extrusion materials - Part 2:
1999-10 Preparation of test specimen and determination of properties

DIN EN ISO 1874-2 Plastics - Polyamide (PA) - moulding and extrusion materials for injection
2013 - 03 moulding and extrusion - Part 2: Preparation of test specimen and

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	determination of properties
DIN EN ISO 2580-2 2004-05	Plastics - Acrylonitrile - butadiene – styrene (ABS) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 2897-2 2004-05	Plastics - Impact resistant polystyrene (PS-I) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 4613-2 2004-12	Plastics - Ethylene/vinyl acetate (E/VAC) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 4894-2 1999-10	Plastics - Styrene/acrylonitrile (SAN) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 6402-2 2004-05	Plastics - acrylonitrile-styrene-acrylate (ASA), acrylonitrile-(ethylene-propylene-diene)-styrene (AEPDS) and acrylonitrile-(chlorinated polyethylene)-styrene (ACS) moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 7391-2 2006-06	Plastics - Polycarbonate (PC) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 7792-2 2013-03	Plastics - Thermoplastic polyester (TP) moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 8257-2 2006-06	Plastics - Poly(methyl methacrylate) (PMMA) - moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 9988-2 2015-05	Plastics - Polyoxymethylene (POM) moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 17855-2 2016-06	Plastics - Polyethylene (PE) moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN EN ISO 19069-2 2016-07	Plastics - Polypropylene (PP) moulding and extrusion materials - Part 2: Preparation of test specimen and determination of properties
DIN 16780-2 1990 - 10	Plastics moulding materials; thermoplastic moulding materials of polymeric blends; Preparation of test specimen and determination of properties

(withdrawn standard)

DIN 53733
2015-10 Testing of plastics - size reduction of plastic products for test purposes

DIN 7742-2
1990-11 Plastics moulding materials; cellulose ester (CA, CP, CAB) -
thermoplastic moulding materials; preparation of test specimen and
determination of properties

7.2 Testing of thermal properties of plastics ***

DIN EN ISO 75-2
2013-08 Plastics - Determination of temperature of deflection under load -
Part 2: Plastics and ebonite

DIN EN ISO 306
2014-03 Plastics - Thermoplastic materials -
Determination of Vicat softening temperature (VST)

DIN 53497
2017-04 Testing of plastics - Hot storage test on mouldings made of thermoplastic
moulding materials without external mechanical stressing

7.3 Testing of electrical properties of plastics ***

DIN IEC 60093
1993-12 Methods of test for insulating materials for electrical purposes; volume
resistivity and surface resistivity of solid electrical insulating materials
(withdrawn standard)

DIN EN 60112
IEC 60 112
2010-05 Method for the determination of the proof and the comparative tracking
indices of solid insulating materials (VDE - regulation)

DIN EN 60695-2-10
VDE 0471 Teil 2-10
2014-04 Fire hazard testing - Part 2-10: Glowing / hot-wire based test methods -
Glow-wire apparatus and common test procedure

DIN EN 60695-2-11
VDE 0471 Teil 2-11
2014-11 Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods -
Glow-wire flammability test method for end-products (GWEPT)

DIN EN 60695-2-12
VDE 0471 Teil 2-12
2015-01 Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods -
Glow-wire flammability index (GWFI) test method for materials

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DIN EN 60695-2-13 Fire hazard testing - Part 2-13: Glowing/hot-wire based test methods -
VDE 0471 Teil 2-13 Glow-wire ignition temperature (GWIT) test method for materials
2015-01

DIN EN 62631-3-1 Dielectric and resistive properties of solid insulating materials - Part 3-1:
2017-01 Determination of resistive properties (DC methods) -
volume resistance and volume resistivity - general method

DIN EN 62631-3-2 Dielectric and resistive properties of solid insulating materials - Part 3-2:
2016-10 Determination of resistive properties (DC Methods) -
surface resistance and surface resistivity

7.4 Determination of the horizontal burning rate of interior materials in motor vehicles *

DIN 75200 Determination of burning behaviour of interior materials in motor vehicles
1980-09

ISO 3795 Road vehicles, and tractors and machinery for agriculture and forestry -
1989-10 Determination of burning behaviour of interior materials

FMVSS 302 Flammability of interior materials
2008-10

VW TL 1010 Materials for vehicle interiors;
2008-01 burning behavior, material requirements

BMW GS 97038 Determination of burning behaviour to automotive interior trim materials
2013-04

Daimler Supply specification Flame retardant properties - Interior trim parts -
DBL 5307 Pkt. 5.1 Requirements and test specifications
2008-03 5.1 Test for determination of the horizontal burning rate of materials

7.5 Determination of the odour characteristics of trim materials in motor vehicles ***

VDA 270 Determination of the odour characteristics of trim materials in motor vehicles
2016-11

7.6 Determination of strength and hardness of plastics ***

DIN EN ISO 2039-1 Plastics - Determination of hardness - Part 1: Ball indentation method
2003-06

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DIN 53435 Testing of Plastics - Bending test and impact test on dynstat test pieces
1983-07

7.7 Determination of density and bulk density of plastics ***

DIN EN ISO 845 Cellular materials of rubber and plastics - Determination of bulk density
2009-10

DIN EN ISO 1183-1 Plastics - Methods for determining the density of non-cellular plastics -
2013-04 Part 1: Immersion method, liquid pycnometer method and titration method

DIN EN ISO 1183-3 Plastics - Methods for determining the density of non-cellular plastics -
2000-05 Part 3: Gas-pycnometer method

7.8 Determination of density and bulk density of plastics ***

DIN EN ISO 62 Plastics - Determination of water absorption
2008-05

DIN EN ISO 175 Plastics - Methods of test for the determination of the effects of immersion in
2011-03 liquid chemicals

8. Biological tests for determination of antimicrobial activities as well as biocompatibility

8.1. Antimicrobial tests on textile products, plastics and other materials

DIN EN ISO 20743 Textiles - Determination of antibacterial activity of textile products
2013-12

ISO 22196 Measurement of antibacterial activity on plastics
2011-08 and other non-porous surfaces

DIN EN ISO 20645 Textile fabrics - Determination of antibacterial activity -
2005-02 Agar plate diffusion test (ISO 20645:2004)

8.2. Biocompatibility tests on medical devices and materials

DIN EN ISO 10993-5 Biological evaluation of medical devices - Part 5: Tests for *in vitro* cytotoxicity
2009-10

OECD 431 *In vitro* skin corrosion: reconstructed human epidermis (RHE) test method
2016-07

OECD 439
2015-07

In vitro skin irritation: reconstructed human epidermis test method

abbreviations used:	
AfPS GS	committee for product safety of federal institute for work safety and work medicine
ASTM	American Society for testing and materials
BfR	Federal Institute for risk assessment
BVL	Federal Institute for consumer protection and food safety
BMW AA	BMW (Bayerische Motorenwerke) operating procedure
BMW GS	BMW (Bayerische Motorenwerke) group standard
CEN	Comité Européen de normalisation (European committee for standardisation)
CPSC	United States consumer product safety commission
DBL	Daimler Benz supply specification
DIN	German institute of standardisation
DIN SPEC	drafting of specifications: no comprehension of all interested parties and therefore significantly faster than standardisation
EN	European standard
F008	OMPG form F008 (service offer)
FLTM	Ford laboratory test method
FMVSS	Federal motor vehicle safety standard
GM / Opel	General Motors / Opel
GMW	General Motors worldwide
IEC	International electrotechnical commission
ISO	International organisation for standardisation
OECD	Organisation for economic co-operation and development
SAA	standard operating procedure (sop) of OMPG
SAE	Society of automotive engineers
VCS	Volvo corporation standard
VDA	German Association of the automotive industry
VDE	German Association for electrical, electronic and information technologies
VdL - RL	German Association of lacquer and print colours r. a. - guideline
VOLVO STD	Volvo group corporate standard
VW PV	Volkswagen specification
VW TL	Volkswagen group standard