

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-EP-17063-01-00 according to DIN EN ISO/IEC 17043:2010

Valid from: **10.09.2020**

Date of issue: 10.09.2020

Holder of certificate:

**Deutsches Referenzbüro für Ringversuche und Referenzmaterialien GmbH
Bodmanstraße 4, 87435 Kempten**

Proficiency testing in the fields:

**physical, physical-chemical, chemical, sensory, microbiological, molecular biological and immunological investigations of food stuff;
chemical and microbiological investigations of animal feed/food;
physical, physical-chemical, chemical, sensory and microbiological investigations of consumer goods in contact with body contact and consumer goods in contact with foodstuff;
material testing of plastics and plastic products, textiles and textile products, board and paper, elastomers and rubber and metallic materials;
emission testing of non-metallic material of vehicle interiors**

The management system requirements in DIN EN ISO/IEC 17043 are written in language relevant to operations of proficiency testing provider and operate generally in accordance with the principles of DIN EN ISO 9001.

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

Abbreviations used: see last page

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This document is a translation. The definitive version is the original German annex to the accreditation certificate.

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1 Proficiency testing of physical, physical-chemical, chemical, molecular biological and immunological tests for foodstuff and chemical tests for animal feed/food

Testing area	Matrix/product	Measured variable/ test parameters	Testing schemes (examples)
Physical, physical-chemical, chemical, molecular biological (qualitative animal species differentiation) and immunological (qualitative animal species differentiation) analysis	Foodstuff	Ingredients Additives Residues Contaminants Acidity/pH value Specific weight/density Freezing point Viscosity DNA Proteins	UHT milk Soft cheese Boiled sausage Fruit preparation Energy drink Egg products Corn aflatoxin Mineral oil in foodstuff Beef, pork, horse (animal species differentiation)
	Animal feed/food	Residues Contaminants	Swine feed aflatoxin Pet food aflatoxin

2 Proficiency testing of physical, physical-chemical and chemical tests for consumer goods with body contact and consumer goods in contact with food, as well as their raw and starting materials and intermediate products

Testing area	Matrix/product	Measured variable/ test parameters	Testing schemes (examples)
Physical, physical-chemical and chemical analysis	Consumer goods with body contact and their raw and starting materials and intermediate products	Ingredients Additives Residues Contaminants Migration analysis Extraction analysis Identification Acidity/pH value	Extractable heavy metals in textiles Aromatic amines in tattoo ink Heavy metals in cosmetics Care products Toys based on water
		Specific weight/density Colour fastness Metals/heavy metals Dyes Mineral oil constituents Fragmentation and degradation products Flame retardants	

Testing area	Matrix/product	Measured variable/ test parameters	Testing schemes (examples)
Physical, physical-chemical and chemical analysis	Consumer goods with food contact and their raw and starting materials and intermediate products	Ingredients Additives Residues Contaminants Migration analysis Extraction analysis Identification Acidity/pH value Specific weight/density Colour fastness Metals/heavy metals Dyes Mineral oil constituents Printing inks and printing ink constituents	Overall migration one sided contact Specific migration (caprolactam) Mineral oil in board and paper Formaldehyde in aqueous extract EN 1541

3 Proficiency testing for sensory testing of foodstuff and consumer goods with food contact

Testing area	Matrix/product	Measured variable/ test parameters	Testing schemes (examples)
Sensory analysis	Foodstuff	Appearance Texture Consistency Mouth feel Smell Taste Trigeminal sensations Aroma Flavour	Water (ranking test, basic tastes) Yoghurt (triangle test, flavour) Chocolate (simple descriptive testing) Drinking water TON, TFN Water quality according to DIN EN 1622 Wine (profile testing)
	Consumer goods with food contact	Appearance Texture Consistency	Sensory analysis of packaging materials according to DIN 10955 Sensory analysis of paper

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		Mouth feel Smell Taste Trigeminal sensations Aroma Flavour	and cardboard according to DIN EN 1230 Tinned food (simple descriptive testing) Tinned food (profile testing)
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4 Proficiency testing for cultural microbiological tests including differentiation of food stuff, animal feed, consumer goods with body contact and consumer goods with food contact

Testing area	Matrix/product	Measured variable/ test parameters	Testing schemes (examples)
Cultural microbiological analysis including differentiation, also with PCR (without MALDI-TOF)	Foodstuff	Bacteria Yeasts Moulds	E.coli milk EHEC O157 milk Staphylococcus cheese Yeasts milk powder Moulds fruit preparation
	Animal feed	Bacteria	Clostridia animal feed Salmonella spp. animal feed
	Consumer goods with body contact	Bacteria Yeasts Moulds Sterility	Moulds O/W Emulsion C.albicans (ATCC 10231) O/W Emulsion Aerobic bacteria in tattoo ink challenge test O/W-emulsion
	Consumer goods with food contact	Bacteria Yeasts Moulds Sterility	Moulds foil packaging Mesophilic sterility testing of tinned food

5 Proficiency testing for material testing of plastics and plastic products, textiles and textile products, cardboard and paper, elastomers and rubber, metallic materials and emission testing of non-metallic materials of vehicle interior

Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Mechanical testing	Plastics and plastic products	Tensile properties Flexural properties Compressive properties Impact properties Tear resistance Compression set Creep behaviour	Tensile test ISO 527-2 Tensile test ASTM D638 Tensile test ISO 527-3 - films - geosynthetics Tensile test composites ISO 527-4/-5 ISO 14129 Tensile test foams ISO 1798 Tensile creep test ISO 899-1 Flexural test ISO 178 Flexural test ASTM D790 Dynstat flexural test DIN 53435 Flexural test composites ISO 14125 Shear strength ISO 14130 Compression test composites ISO 14126 Compression test ISO 604 Compression set foams ISO 1856 Charpy-(notched) impact test ISO 179 Dynstat-(notched) impact test DIN 53435 Izod impact test ISO 180/ ASTM D256

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Mechanical Testing	Plastics and plastic products	Impact behaviour Dynamic-mechanical characteristics Puncture impact behaviour Tear resistance Steam jet test	DMA ISO 6721-5 Instrumented puncture impact test ISO 6603-2 ASTM D3763 Static puncture test ISO 12236 / ASTM D4833 Steam jet test DBL 5416/ ISO 16925 Impact resistance – free falling dart ISO 7765-1 Tear resistance – trouser tear method ISO 6383-1 Tear resistance – Elmendorf ISO 6383-2
Mechanical Testing	Textile and textile products	Tensile properties Tear resistance	Tensile properties – strip method ISO 13934-1 Tensile properties – grab method ISO 13934-2 Tear properties – Elmendorf method ISO 13937-1 Tear properties – trouser shaped specimen ISO 13937-2 Tear properties – wing shaped specimen ISO 13937-3 Tensile test ISO 1421
Mechanical testing	Rubber	Tensile properties Tear resistance Compression set Tension set	Tensile test ISO 37 Tensile test ASTM D412 Tear resistance ISO 34 Trouser/angle test piece Compression set ISO 815-1/-2 Tensile set ISO 2285

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Mechanical testing	Cardboard/paper	Flexural properties	Modulus in bending – bending strength EN 310/DBL 5472
Thermal testing/ burning behaviour	Plastic and plastic products	Melting point and melting enthalpy Glass transition temperature Oxidation induction time (OIT value) Filler content Black carbon content Dispersion of black carbon Coefficient of linear thermal expansion Softening temperature Heat deflection temperature (HDT) Burning rates / burning behaviour Glow wire ignition temperature (GWIT)	DSC-Analysis – melting point and enthalpy ISO 11357-3 ASTM D3418 DSC-Analysis – glass transition temperature ISO 11357-2 ASTM D3418 DSC-Analysis – oxidation induction time ISO 11357-6 ASTM D3895 Thermogravimetry (TGA) – filler content ISO 11358 Black carbon content geosynthetics ISO 11358 ASTM D4218 ASTM D5596 Linear thermal expansion ISO 11359 Vicat softening temperature ISO 306 ASTM D1525 Heat deflection temperature ISO 75 ASTM D648 Burning behaviour FMVSS302 / DIN 75200 Burning behaviour UL 94 V / HB Burning behaviour foams FMVSS 302 / DBL 5307 Glow wire test EN 60695-2-13

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Thermal testing/ burning behaviour	Textiles and textile products	Melting point and melting enthalpy Burning rate	DSC-Analysis (woven goods) ISO 11357-3 Burning rate textiles FMVSS 302 / DIN 75200
Thermal testing/ burning behavior	Elastomers	Glass transition temperature Black carbon content	DSC-Analysis – glass transition temperature ISO 11357-2 Thermogravimetry (TGA) – black carbon content ISO 11358
Hardness testing	Plastic and plastic products	Hardness	Hardness Shore D ISO 868 Ball indentation hardness ISO 2039-1 Hardness foams ISO 2439 / ASTM D3574 Compression stress value foams ISO 3386-1 / DBL 5452 Barcol hardness EN 59 / ASTM D2583
Hardness testing	Rubber	Hardness	Hardness Shore A ISO 868 / ISO 4619 / ISO 48 Harndess Shore A ASTM D2240 IRHD-Hardness (Methode M) ISO 48 IRHD-Harndess (Methode N) ISO 48
Density/mass per unit area	Plastic and plastic products	Density Apparent density	Density ISO 1183-1 Density ASTM D792 Apparent density (foams) ISO 845

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
	Textiles and textile products	Mass per unit area/ grammage	Mass per unit area EN 12127, ISO 3801
	Rubber	Density	Density ISO 2781
Rheological properties	Plastics and plastic products	Melt flow rate (MFR) and melt volume rate (MVR) Solution viscosity / viscosity number Fluidity Apparent viscosity Complex shear viscosity (memory modulus, loss modulus, viscosity)	Melt index MFR/MVR ISO 1133 Melt index ASTM D1238 Viscosity number ISO 307 - sulfuric acid - m-cresol - formic acid Viscosity number of PBT ISO 1628-5 Fluidity – capillary rheometer ISO 11443 Parallel plate rheometer ISO 6721-10
	Rubber	Mooney Viscosity	Mooney viscosity ISO 289-1

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Optical testing/Surface testing	Plastics and plastic products	Gloss level Colour measurement Abrasion Erichsen-Hardness Scratch resistance Contact angle and surface energy Roughness measurement (contact free) Roughness measurement (profile method) Transparency/haze	Gloss reading ISO 2813 Colour measurement 8°/45° – ΔE , ΔL , Δa , Δb DIN 53236/ISO 7724 Scratch resistance PV 3952 Erichsen-Hardness pencil ISO 1518 Contact angle and surface energy DIN 55660-2 Roughness (surface/line) ISO 4287/ISO 25178-2 Roughness (profile method) ISO 4287/ISO 4288 Abrasion by abrasive wheels ISO 9352 Transparency – haze (plastic films) ISO 14782
	Textiles and textile products	Colour measurement Whiteness measurement	Colorimetry of textiles ΔE , ΔL , Δa , Δb Whiteness measurement according to Ganz
Environmental simulation	Plastics and plastic products	Light fastness Sunlight simulation Stress cracking Exposure to laboratory light sources	Light fastness ISO 105-B06 ISO 4892 ASTM G155 Sunlight simulation DIN 75220 Exposure to light – UV lamps ISO 4892-3/ ASTM G154 Environmental stress cracking DIN EN 14576/ ASTM D5397

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
	Aluminum wheels Reference specimens according to ISO 9227 Painted metal plates	Corrosion testing	Aluminum wheels – corrosion testing (Filiform and CASS) DBL 7381 Corrosion testing ISO 9227
Permeation	Plastics and plastic products	Water vapour transmission rate Gas transmission rate	Water vapour transmission rate ISO 15106-3 Gas transmission rate ISO 15105-2
Water content, water absorption	Plastics and plastic products	Water content Water absorption	Water content (Karl-Fischer) ISO 15512 Water content (Aquatrac®) Water absorption ISO 62
Thickness measurement	Plastics and plastic products	Thickness	Film Thickness ISO 4593 Thickness at specified pressures ISO 9863-1
	Textiles and textile products	Thickness	Thickness of nonwovens ISO 9073-2 Thickness ISO 2286-3

Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Other physical properties	Plastics and plastic products	Physical properties	Coefficients of friction (films) ISO 8295 Dimensional stability EN 1107-2 Resistance to internal pressure ISO 1167-1/-2 Ring stiffness (pipes) ISO 9969 Sealed-seam strength (films) DIN 55529 Adhesion of multilayer pipes ISO 17454 Ash content ISO 1172 Quantitative infrared spectroscopy
Other physical properties	Rubber	Physical properties	Rebound resilience ISO 4662, DIN 53512 Abrasion ISO 4649 Increase in mass ISO 1817 Solvent extract of rubber ISO 1407
Colour fastness testing	Textiles and textile products	Fastness to light Fastness to washing Fastness to dry cleaning Fastness to water Fastness to perspiration Fastness to rubbing	Colour fastness to light ISO 105-B02 and B04 Colour fastness to washing ISO-C06 and C08 Colour fastness to dry cleaning ISO 105-D01 Colour fastness to water ISO 105-E01 Colour fastness to perspiration ISO 105-E04 Colour fastness to rubbing – Crockmeter ISO 105-X12

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Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Functional properties and fabric properties	Textiles and textile products	Functional properties	Permeability to air ISO 9237 Demand absorbency ISO 9073-12 Dimensional change in washing ISO 5077/ ISO 6330 Hydrostatic pressure test ISO 811 Thermal and water vapour resistance ISO 11092 Industrial washing and colour change ISO 15797 Flexure resistance (flexometer) ISO 32100 Resistance to damage by flexing ISO 7854
		Fabric properties	pH value ISO 3071 Abrasion resistance – Martindale ISO 12947-2 Pilling properties (pilling box) ISO 12945-1 Pilling properties (Martindale) ISO 12945-2 Bursting strength and bursting distension ISO 13938-2 Slippage resistance of yarns ISO 13936-1/-2 Construction of fabric Maximum force seam ISO 13935-1

Testing area	Matrix/product	Measured variable/test parameters/test standard	Testing schemes (examples)
Determination of fibre blends	Textiles and textile products	Quantitative determination of fibre blends Qualitative determination of fibre blends	Quantitative determination of a fibre blend ISO 1833: - Cotton fibres - Polyester fibres - Acrylic fibres - Protein fibres - Viscose fibres - Polyamide fibres Qualitative determination of a fibre blend
Emission testing	Non-metallic material of vehicle interiors	Odour test Formaldehyde emission Total carbon emission Fogging behaviour	Odour test VDA 270 – PV 3900 Formaldehyde emission VDA 275 – PV 3925 Total carbon emission VDA 277 – PV 3341 Fogging method A DIN 75201 Fogging method B DIN 75201 – PV 3015

Abbreviations used:

- DIN Deutsches Institut für Normung e.V. (German Institute for Standardization e.V.)
- EN European standard
- IEC International Electrotechnical Commission
- ISO International Organization for Standardization
- FMVSS Federal Motor Vehicle Safety Standard
- ASTM American Society for Testing and Materials
- PV Prüfvorschrift Volkswagen AG (Volkswagen Company Standard)
- VDA Verband der Automobilindustrie (German Association of the Automotive Industry)
- UL Underwriters Laboratories
- DBL Technische Liefervorschrift Daimler AG (Mercedes-Benz Company Standard)