Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory Bundesanstalt für Materialforschung und -prüfung (BAM) (Federal Institute for Materials Research and Testing)
Department 4 Materials and the Environment
Unter den Eichen 87, 12205 Berlin

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

fitness for purpose of materials and biocides against biogenic attack, identity of reference organisms; scanning electron microscopic surface analysis and micro-scale analysis of inorganic and organic materials; analysis and sampling of volatile and particle-bound organic compounds (VVOC, VOC, SVOC and POM) and selected methods for the sampling of dusts in test chambers and indoor air, as well as physical and chemical analysis of these compounds

The accreditation certificate shall only apply in connection with the notice of accreditation of 07.06.2019 with the accreditation number D-PL-11075-02. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 10 pages.

Registration number of the certificate: D-PL-11075-02-00

Berlin, 07.06.2019
Dipl.-Ing. Andrea Valbuena
Head of Division

Translation issued: 12.09.2019
Head of Division

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

This document is a translation. The definitive version is the original German accreditation certificate.
See notes overleaf.
The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other’s accreditations.

The up-to-date state of membership can be retrieved from the following websites:

EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu
Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11075-02-00 according to DIN EN ISO/IEC 17025:2005

Valid from: 07.06.2019
Date of issue: 07.06.2019

Holder of certificate:

Bundesanstalt für Materialforschung und -prüfung (BAM) (Federal Institute for Materials Research and Testing)
Department 4 Materials and the Environment
Unter den Eichen 87, 12205 Berlin

Tests in the fields:

fitness for purpose of materials and biocides against biogenic attack, identity of reference organisms; scanning electron microscopic surface analysis and micro-scale analysis of inorganic and organic materials; analysis and sampling of volatile and particle-bound organic compounds (VVOc, VOc, SVVOc and POM) and selected methods for the sampling of dusts in test chambers and indoor air, as well as physical and chemical analysis of these compounds

Within the given testing field marked with *), the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS GmbH, the free choice of standard or equivalent testing methods.
The listed testing methods are exemplary. The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation.

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

Abbreviations used: see last page

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
Annex to the accreditation certificate D-PL-11075-02-00

1 Biodeterioration and reference organisms

1.1 Testing in the areas of fitness for purpose of materials and biocides against biogenic attack and identity of reference organisms

1.1.1 Determination of the fitness for purpose of materials (textiles, wood, plastics, metals, insulating materials and other renewable resources as well as petroleum and derived products) using biological test systems with insects *

ISO 3998 1977-07 Textiles - Determination of resistance to certain insect pests

DIN EN 49-1 2016-11 Wood preservatives – Determination of the protective effectiveness against Anobium punctatum (De Geer) by egg-laying and larval survival – Part 1: Application by surface treatment (laboratory method)

DIN EN 49-2 2015-10 Wood preservatives – Determination of preventive action against Anobium punctatum (De Geer) by egg-laying and larval survival – Part 2: Application by impregnation (laboratory method)

DIN EN 21 1990-04 Wood preservatives – Determination of toxic values against Anobium punctatum (De Geer) by larval transfer (laboratory method) *(standard withdrawn)*

DIN EN 46-1 2016-11 Wood preservatives – Determination of the preventive action against recently hatched larvae of Hylotrupes bajulus (Linnaeus) – Part 1: Application by surface treatment (laboratory method)

DIN EN 46-2 2016-11 Wood preservatives – Determination of the preventive action against recently hatched larvae of Hylotrupes bajulus (Linnaeus) – Part 2: Ovicidal effect (laboratory method)

DIN EN 47 2016-11 Wood preservatives – Determination of the toxic values against larvae of Hylotrupes bajulus (Linnaeus) (laboratory method)

DIN EN 48 2005-07 Wood preservatives – Determination of eradicant action against larvae of Anobium punctatum (De Geer) (laboratory method)

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DIN EN 117 2013-01
Wood preservatives – Determination of toxic values against Reticulitermes species (European termites) (laboratory method)

DIN EN 118 2014-03
Wood preservatives – Determination of preventive action against Reticulitermes species (European termites) (laboratory method)

DIN EN 370 1993-05
Wood preservatives; determination of eradicant efficacy in preventing emergence of Anobium punctatum (De Geer)

DIN EN 1390 2006-09
Wood preservatives – Determination of the eradicant action against Hylotrupes bajulus (Linnaeus) larvae – Laboratory method

StAA-QMH-4.1-3-101 2015-09
Determination of the resistance of insulating materials to textile insects

StAA-QMH-4.1-3-138 2017-03
Determination of the resistance of plastics to subterranean termites of the species:
- Reticulitermes spec.
- Coptotermes spec.
- Mastotermes darwiniiensis

CUAP, Annex D 2003-06
Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres

StAA-QMH-4.1-3-131 2017-01
Transfer of clothes moths Tineola bisselliella and determination of vitality after return of samples

StAA-QMH-4.1-3-132 2017-01
Transfer of furniture carpet beetles Anthrenus flavipes and determination of vitality after return of samples

StAA-QMH-4.1-3-133 2017-01
Transfer of test specimens with live larvae of Anobium punctatum and determination of vitality of the larvae after return of test specimens

StAA-QMH-4.1-3-134 2017-01
Transfer of test specimens with live larvae of Hylotrupes bajulus (house longhorn beetle) and determination of vitality of the larvae after return of test specimens

StAA-QMH-4.1-3-135 2017-01
Transfer of test specimens with live larvae of Lyctus brunneus and determination of vitality of the larvae after return of test specimens

Valid from: 07.06.2019
Date of issue: 07.06.2019
1.1.2 Determination of the fitness for purpose of materials (textiles, wood, plastics, metals, insulating materials and other renewable resources as well as petroleum and derived products) using biological test systems with microorganisms *

<table>
<thead>
<tr>
<th>Standard Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>DIN EN 113</td>
<td>Wood preservatives – Method of test for determining the protective effectiveness against wood destroying basidiomycetes – Determination of the toxic values 1996-11</td>
</tr>
<tr>
<td>+B1</td>
<td>2014-04</td>
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<tr>
<td>DIN EN 152</td>
<td>Wood preservatives – Determination of the protective effectiveness of a preservative treatment against blue stain in wood in service – Laboratory method 2012-02</td>
</tr>
<tr>
<td>ISO 16869</td>
<td>Plastics - Assessment of the effectiveness of fungistatic compounds in plastics formulations 2008-06</td>
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<tr>
<td>ISO 22196</td>
<td>Measurement of antibacterial activity on plastics and non-porous surfaces 2011-08</td>
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<tr>
<td>DIN EN 15457</td>
<td>Paints and varnishes – Laboratory method for testing the efficacy of film preservatives in a coating against fungi 2014-11</td>
</tr>
<tr>
<td>DIN EN 15458</td>
<td>Paints and varnishes – Laboratory method for testing the efficacy of film preservatives in a coating against algae 2014-11</td>
</tr>
<tr>
<td>DIN V ENV 12038</td>
<td>Durability of wood and wood-based products – Wood-based panels – Method of test for determining the resistance against wood-destroying basidiomycetes 2002-07</td>
</tr>
<tr>
<td>DIN CEN/TS 12404</td>
<td>Durability of wood and wood-based products – Assessment of the effectiveness of a masonry fungicide to prevent growth into wood of Dry Rot Serpula lacrymans (Schumacher ex Fries) S.F. Gray – Laboratory method 2015-05</td>
</tr>
<tr>
<td>DIN EN 839</td>
<td>Wood preservatives – Determination of the protective effectiveness against wood destroying basidiomycetes – Application by surface treatment 2015-01</td>
</tr>
<tr>
<td>CUAP, Annex C</td>
<td>Factory-made thermal insulation material and/or acoustic insulation material made of vegetable or animal fibres 2003-06</td>
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Date of issue: 07.06.2019
<table>
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<tr>
<th>Standard/Method</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ASTM G-21-09 2015-01</td>
<td>Standard practice for determining resistance of synthetic polymeric materials to fungi</td>
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<tr>
<td>ASTM G-29-16 2016</td>
<td>Standard practice for determining algal resistance of plastic films</td>
</tr>
<tr>
<td>ASTM C 1338-14 2014</td>
<td>Standard test method for determining fungi resistance of insulation materials and facings</td>
</tr>
<tr>
<td>AATCC Test Method 30 2004</td>
<td>Antifungal activity, Assessment on textile materials - Mildew and rot resistance of textile materials</td>
</tr>
<tr>
<td>DIN EN 330 2015-01</td>
<td>Wood preservatives – Determination of the relative protective effectiveness of a wood preservative for use under a coating and exposed out-of-ground contact: L-joint method</td>
</tr>
<tr>
<td>DIN CEN/TS 12037 2004-05</td>
<td>Wood preservatives – Field test method for determining the relative protective effectiveness of a wood preservative exposed out of ground contact – Horizontal lap-joint method</td>
</tr>
<tr>
<td>VW TL 523 34 2003-10</td>
<td>Cellular polyurethane – Component requirements – Microbial test</td>
</tr>
<tr>
<td>DIN EN 15101-1 2013-12</td>
<td>Thermal insulation products for buildings – In-situ formed loose fill cellulose (LFCI) products – Part 1: Specification for the products before installation (Annex F)</td>
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<td>GAM - EG - 13 1986-06</td>
<td>Basic environmental testing procedures, method 13 “Mildew”</td>
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JIS Z 2801 2010
Antibacterial products - Test for antibacterial activity and efficacy

RTCA DO-160G 2014-12
Environmental Conditions and Tests Procedures for Airborne Equipment, Section 13 (only visual assessment of colonizability)

StAA-QMH-4.1-3-130 2016-06
Transfer of test specimens with living infestation by true dry rot and re-isolation of the fungus after return of samples

1.1.3 Determination of the fitness for purpose of materials (textiles, wood, plastics, metals, insulating materials and other renewable resources as well as petroleum and derived products) in ground contact *

EN ISO 11721-1 2001-04
Textiles – Determination of resistance of cellulose-containing textiles to microorganisms – Soil burial test – Part 1: Assessment of rot-retardant finishing

DIN EN 252 2015-01
Wood preservatives – Field test method for determining the relative protective effectiveness of a wood preservative in ground contact

DIN EN 12225 2000-12
Geotextiles and geotextile-related products – Method for determining the microbiological resistance by a soil burial test

DIN V ENV 807 2001-12
Wood preservatives – Determination of the effectiveness against soft rotting micro-fungi and other soil inhabiting micro-organisms

DIN ISO 11274 2014-07
Soil quality – Determination of the water-retention characteristic – Laboratory methods

1.2 Preparation and conditioning of test specimens

1.2.1 Method for preparation and conditioning of test specimens by impregnation

DIN EN 84 1997-05
Wood preservatives – Accelerated ageing of treated wood prior to biological testing – Leaching procedure

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1.2.2 Method for preparation and conditioning of test specimens by surface treatment *

DIN EN 73 2014-12
Wood preservatives — Accelerated ageing of treated wood prior to biological testing — Evaporative ageing procedure

DIN CEN/TS 15397 2006-08
Wood preservatives — Method for natural preconditioning out of ground contact of treated wood specimens prior to biological laboratory test

2 Testing of materials and air pollutants

2.1 Scanning electron microscopic surface analysis and micro-scale analysis of inorganic and organic materials (Adlershof location)

StAA-QMH-4.2-AH-004 2017-11
Scanning electron microscopic surface analysis in high vacuum and in pressure range up to 2,600 Pa

StAA-QMH-4.2-AH-009 2017-11
Determination of element composition in the microscopic range of metallic and other inorganic materials using standard free, energy dispersive X-ray microanalysis on the ESEM XL30

2.2 Analysis and sampling of volatile and particle-bound organic compounds (VVOC, VOC, SVOC and POM) and dusts

2.2.1 Test chamber analysis (emission test chamber method, emission test cell method) *

DIN EN ISO 16000-9 2008-04
Indoor air — Part 9: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test chamber method

DIN EN ISO 16000-10 2006-06
Indoor air — Part 10: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test cell method

2.2.2 Determination of VOC by GC with MS or MS-FID *

DIN ISO 16000-6 2012-11
Indoor air — Part 6: Determination of volatile organic compounds in indoor air test chamber air by active sampling on TENAX TA® sorbent, thermal desorption and gas chromatography with MS or MS-FID

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E DIN EN 16516
2017-04
Construction products – Assessment of release of
dangerous substances – Determination of emissions into
indoor air

BAM
2003-02
Official Publications of BAM, Volume 33 (02/2003) –
Method for testing the emission of volatile organic
compounds for eco-labelling (p. 160 ff.)

2.2.3 Determination of VOC by ion chromatography

VDI 4301-7
2017-04
Measurement of indoor air pollution – Measurement of
carboxylic acids

2.2.4 Determination of formaldehyde

DIN EN 717-1
2005-01
Wood-based panels – Determination of formaldehyde
release – Part 1: Formaldehyde emission by the chamber
method

BAM
1999-01
for testing the emission of formaldehyde and other volatile
organic compounds for eco-labelling in accordance with RAL-
UZ 38

BAM
1991-01
Official Publications of BAM – Test method for wood based
products (version of 15 January 1991) – Material testing 33
(1991), p. 11-12

2.2.5 Sampling and sample preparation of organic gaseous airborne substances in indoor
environments*

DIN ISO 16000-3
2013-01
Indoor air – Part 3: Measurement of formaldehyde and
other carbonyl compounds – Sampling with a pump

DIN EN ISO 16000-11
2006-06
Indoor air – Part 11: Determination of the emission of
volatile organic compounds from building products and
furnishing – Sampling, storage of samples and preparation
of test specimens

DIN EN ISO 16017-1
2001-10
Indoor, ambient and workplace air – Sampling and analysis
of volatile organic compounds by sorbent tube/thermal
desorption/capillary gas chromatography – Part 1:
Sampling with a pump

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2.2.6 Determination of air change rate
VDI 4300-7
2001-07
Indoor air pollution measurement – Measurement of indoor air change rate

2.2.7 Gravimetry
StAA-QMH-4.2-011
2012-08
Determination of dust emissions in air (gravimetric determination of dust)

2.2.8 Other analysis
RAL-UZ 205
2017-01
Basis for the award of eco-labels – Office equipment with print function (printers and multifunction devices)
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Abbreviations used:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AATCC</td>
<td>American Association of Textile Chemists and Colorists</td>
</tr>
<tr>
<td>AECTP</td>
<td>Allied Environmental Conditions and Test Publications</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>BAM</td>
<td>Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing)</td>
</tr>
<tr>
<td>BGBI</td>
<td>Bundessgesetzblatt (Federal Law Gazette)</td>
</tr>
<tr>
<td>BGR</td>
<td>Berufsgenossenschaftliche Regeln (rules of the German employer’s liability insurance associations)</td>
</tr>
<tr>
<td>CEN/TS</td>
<td>Unchanged German adoption of a European Technical Specification</td>
</tr>
<tr>
<td>CUAP</td>
<td>Common Understanding of Assessment Procedure</td>
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<td>DIBt</td>
<td>Deutsches Institut für Bautechnik (German centre of expertise for civil engineering)</td>
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<tr>
<td>DIN</td>
<td>Deutsches Institut für Normung e. V. (German Institute for Standardization)</td>
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<td>EN</td>
<td>European standard</td>
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<td>ETA</td>
<td>European Technical Approval</td>
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<td>GAM – EG</td>
<td>French National Defence Standard/Basic Environmental Test Procedures</td>
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<td>IBRG</td>
<td>International Biodeterioration Research Group</td>
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<td>IEC</td>
<td>International Electrotechnical Commission</td>
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<td>ISO</td>
<td>International Organization for Standardization</td>
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<td>ITVA</td>
<td>Ingenieurtechnischer Verband Altlasten (German Engineering Association for Contaminated Sites)</td>
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<tr>
<td>JIS Z</td>
<td>Japanese Industrial Standard</td>
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<td>MIL-STD</td>
<td>Military Standards</td>
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<td>QMH</td>
<td>Quality management manual</td>
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<td>RAL</td>
<td>Deutsches Institut für Gütesicherung und Kennzeichnung e. V. (German Institute for Quality Assurance and Labelling)</td>
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<td>RTCA DO</td>
<td>Radio Technical Commission for Aeronautics Document</td>
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<tr>
<td>SIA V</td>
<td>Schweizerischer Ingenieur- und Architektenverein (Swiss Association of Engineers and Architects)</td>
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<td>SN</td>
<td>Swiss standard</td>
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<td>StAA</td>
<td>In-house method of BAM</td>
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<td>VDI</td>
<td>Verein deutscher Ingenieure (Association of German Engineers)</td>
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<tr>
<td>VW TL</td>
<td>Volkswagen Technische Lieferbedingungen (Volkswagen technical terms of delivery)</td>
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