Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-14116-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 15.05.2018 to 11.04.2022 Date of issue: 15.05.2018

Holder of certificate:

Forschungsinstitut für Wärmeschutz e. V. München
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Tests in the fields:

Tests at thermal insulation materials, building materials, underlays and construction units: determination of the thermal conductivity and of the service temperature; tests of reaction to fire; tests of the mechanically-technological, physical and selected chemical properties as well as determination of the emission of volatile organic compounds; Sampling of thermal insulation materials on behalf of certification bodies

Testing of flexible sheets for waterproofing and thermal insulation products (system of assessment and verification of constancy of performance 3) within the scope of the Regulation (EU) No 305/2011 laying down harmonised conditions for the marketing of construction products (Construction Products Regulation)

Tests of reaction to fire of construction products, for which the reference to a relevant harmonised technical specification is not required (chapter 3. Annex V, (EU) No 305/2011)

Abbreviations used: see last page

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

1 Tests at thermal insulation materials, building materials, underlays and construction units: determination of the thermal conductivity and of the service temperature; tests of reaction to fire; tests of the mechanically-technological, physical and selected chemical properties as well as determination of the emission of volatile organic compounds; Sampling of thermal insulation materials Probenahme von Wärmedämmstoffen on behalf of certification bodies

1.1 Tests of thermal conductivity *

DIN 52612-1 1979-09	Testing of Thermal Insulating Materials; Determination of Thermal Conductivity by the Guarded Hot Plate Apparatus; Test Procedure and Evaluation *(withdrawn standard)*
DIN 52612-3 1984-06	Testing of Thermal Insulating Materials; Determination of Thermal Conductivity by the Guarded Hot Plate Apparatus; Thermal Resistance of Laminated Materials for Use in Building Practice *(withdrawn standard)*
DIN 52613 1977-01	Thermal Insulation Testings; Determination of Thermal Conductivity by the Tube Method *(withdrawn standard)*
EN 12664 2001	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate anc heat flow meter methods - Dry and moist products with medium and low thermal resistance
EN 12667 2001	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate anc heat flow meter methods - Products of high and medium thermal resistance
EN 12939 2000	Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate anc heat flow meter methods - Thick products of high and medium thermal resistance
EN ISO 8497 1996	Thermal insulation - Determination of steady-state thermal transmission properties of thermal insulation for circular pipes
ISO 8301 AMD 1 2010-08	Thermal insulation - Determination of steady-state thermal resistance and related properties - Heat flow meter apparatus; Amendment 1

ISO 8302 1991-08	Thermal insulation; determination of steady-state thermal resistance and related properties; guarded hot plate apparatus
ASTM C 177 2013	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
ASTM C 518 2017	Standard Test Method for Steady-State Heat Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
ASTM C 335/C335M 2017	Standard Test Method for Steady-State Heat Transfer Properties of Horizontal Pipe Insulation

1.2 Tests of reaction to fire *

DIN 4102-1 1998-05	Fire behavior of building materials and building components - Part 1: Building materials; concepts, requirements and tests *(here: Paragraph 6.2 - Building material class B2 and Paragraph 6.3 - Building material class B3)*
EN 16733 2016-07	Reaction to fire tests for building products - Determination of a building product's propensity to undergo continuous smouldering
EN ISO 11925-2 2010	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test *(here: Euro-class E)*

1.3 Tests of the service temperature *

DIN 52271 1981-06	Testing of mineral fibre insulating materials; Behaviour at elevated temperatures
EN 14706 2012	Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature
EN 14707 2012	Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature for preformed pipe insulation
ISO 8142 1990-03	Thermal insulation; bonded preformed man-made mineral fibre pipe sections; specification

1.4 Tests of dimensions and bulk density as mechanically-technological characteristics *

DIN 18159-1 1991-12	Cellular plastics as in-situ cellular plastics in building; in-situ polyurethane (PUR) foam for thermal insulation; application, properties, execution, testing *(withdrawn standard)*
DIN 18159-2 1978-06	Cellular Plastics as in-situ Foam in Building; In-situ Foam Produced from Urea-formaldehyde (UF) Resin for Thermal Insulation; Application, Properties, Execution, Testing
DIN 52273 1993-05	Testing of mineral wool insulating materials; determination of annealing loss *(withdrawn standard)*
DIN 52275-1 1977-01	Testing of mineral fibrous insulating materials; determination of linear dimensions and bulk density, plain products *(withdrawn standard)*
DIN 52275-2 1978-08	Testing of mineral fibrous insulating materials; determination of linear dimensions and bulk density, casings
DIN 53421 1984-06	Testing of rigid cellular plastics; compression test *(withdrawn standard)*
DIN 53424 1978-12	Testing of Rigid Cellular Materials; Determination of Dimensional Stability at Elevated Temperatures with Flexural Load and with Compressive Load *(withdrawn standard)*
DIN 53431 1977-08	Testing of rigid cellular plastics; determination of dimensional stability *(withdrawn standard)*
DIN 53433 1983-07	Testing of rigid cellular plastics; determination of water absorption by water immersion *(withdrawn standard)*
EN 822 2013	Thermal insulating products for building applications - Determination of length and width
EN 823 2013	Thermal insulating products for building applications - Determination of thickness

EN 824 2013	Thermal insulating products for building applications - Determination of squareness
EN 825 2013	Thermal insulating products for building applications - Determination of flatness
EN 826 2013	Thermal insulating products for building applications - Determination of compression behavior
EN 1602 2013	Thermal insulating products for building applications - Determination of the apparent density
EN 1603 2013	Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions (23 °C/ 50 % relative humidity)
EN 1604 2013	Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions
EN 1605 2013	Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions
EN 1606 2013	Thermal insulating products for building applications - Determination of compressive creep
EN 1607 2013	Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces
EN 1608 2013	Thermal insulating products for building applications - Determination of tensile strength parallel to faces
EN 1609 2013	Thermal insulating products for building applications - Determination of short term water absorption by partial immersion
EN 12085 2013	Thermal insulating products for building applications - Determination of linear dimensions of test specimen
EN 12087 2013	Thermal insulating products for building applications - Determination of long term water absorption by immersion
EN 12088 2013	Thermal insulating products for building applications - Determination of long term water absorption by diffusion

EN 12089 2013	Thermal insulating products for building applications - Determination of bending behavior
EN 12090 2013	Thermal insulating products for building applications - Determination of shear behavior
EN 12091 2013	Thermal insulating products for building applications - Determination of freeze-thaw resistance
EN 12114 2000	Thermal performances of buildings - Air permeability of building components and building elements - Laboratory test method
EN 12430 2013	Thermal insulating products for building applications - Determination of behaviour under point load
EN 12431 2013	Thermal insulating products for building applications - Determination of thickness for floating floor insulating products
EN 13467 2018	Thermal insulating products for building equipment and industrial installations - Determination of dimensions, squareness and linearity of preformed pipe insulation
EN 13470 2001	Thermal insulating products for building equipment and industrial installations - Determination of the apparent density of preformed pipe insulation
EN 13471 2001	Thermal insulating products for building equipment and industrial installations - Determination of the coefficient of thermal expansion
EN 13472 2012	Thermal insulating products for building equipment and industrial installations - Determination of short term water absorption by partial immersion of preformed pipe insulation
EN 13820 2003-12	Thermal insulating materials for building applications - Determination of organic content
EN 29052-1 1992	Acoustics; determination of dynamic stiffness; part 1: materials used under floating floors in dwellings
EN 29053 1993	Acoustics; materials for acoustical applications; determination of airflow resistance
EN ISO 4590 2016	Rigid cellular plastics - Determination of the volume percentage of open cells and of closed cells

1.5 Tests of chemical behavior *

EN 13468 2001	Thermal insulating products for building equipment and industrial installations - Determination of trace quantities of water soluble chloride, fluoride, silicate, and sodium ions and pH *(Limitation to the determination of the chloride ions and the pH value)*
EN ISO 10304-1 2009	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate *(Limitation to the determination of the dissolved anions chloride)*

1.6 Tests of water vapour transmission properties *

DIN 52615 1987-11	Testing of thermal insulating materials; determination of water vapour (moisture) permeability of construction and insulating materials *(withdrawn standard)*
EN 1931 2000	Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of water vapour transmission properties
EN 12086 2013	Thermal insulating products for building applications - Determination of water vapour transmission properties
EN 13469 2012	Thermal insulating products for building equipment and industrial installations - Determination of water vapour transmission properties of preformed pipe insulation
EN ISO 12570 2000+A1:2013	Hygrothermal performance of building materials and products - Determination of moisture content by drying at elevated temperature
EN ISO 12571 2013	Hygrothermal performance of building materials and products - Determination of hygroscopic sorption properties
EN ISO 12572 2016	Hygrothermal performance of building materials and products - Determination of water vapour transmission properties
ASTM E 96 2016	Standard Test Methods for Water Vapour Transmission of Materials

1.7 Tests of underlays *

EN 1107-1 1999	Flexible sheets for waterproofing - Determination of dimensional stability - Part 1: Bitumen sheets for roof waterproofing
EN 1107-2 2001	Flexible sheets for waterproofing - Determination of dimensional stability - Part 2: Plastic and rubber sheets for roof waterproofing
EN 1109 2013	Flexible sheets for waterproofing - Bitumen sheets for roof waterproofing - Determination of flexibility at low temperature
EN 1296 2000	Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterprofing - Method for artificial ageing by long term exposure to elevated temperature
EN 1297 2004	Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Method of artificial ageing by long term exposure to the combination of UV radiation, elevated temperature and water
EN 1848-1 1999	Flexible sheets for waterproofing - Determination of length, width and straightness - Part 1: Bitumen sheets for roof waterproofing
EN 1848-2 2001	Flexible sheets for waterproofing - Determination of length, width, straightness and flatness - Part 2: Plastic and rubber sheets for roof waterproofing
EN 1849-1 1999	Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 1: Bitumen sheets for roof waterproofing
EN 1849-2 2009	Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastic and rubber sheets
EN 1928 2000	Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Determination of water tightness
EN 12310-1 1999	Flexible sheets for waterproofing - Part 1: Bitumen sheets for roof waterproofing; determination of resistance to tearing (nail shank)
EN 12311-1 1999	Flexible sheets for waterproofing - Part 1: Bitumen sheets for roof waterproofing; Determination of tensile properties

EN 13111 2010	Flexible sheets for waterproofing - Underlays for discontinuous roofing and walls - Determination of resistance to water penetration
EN 13416 2001	Flexible sheets for waterproofing - Bitumen, plastic and rubber sheets for roof waterproofing - Rules for sampling
EN 13859-1 2010	Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing
EN 13859-2 2010	Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 2: Underlays for walls

1.8 Test chamber determinations of the emission of volatile organic compounds from thermal insulation materials, building materials, underlays and construction units*

ISO 16000-3 2011	Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method *(here: Application only for test chamber tests)*
ISO 16000-6 2011	Indoor air - Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS or MS-FID *(here: Application only for test chamber tests)*
EN ISO 16000-9 2006	Indoor air - Part 9: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test chamber method
EN ISO 16000-10 2006	Indoor air - Part 10: Determination of the emission of volatile organic compounds from building products and furnishing - Emission test cell method
EN ISO 16000-11 2006	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
EN ISO 16017-1 2000	Indoor, ambient and workplace air - Sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography - Part 1: Pumped sampling

1.9 Sampling

va 8-(3a) 2017-04	Sampling of thermal insulation materials - withdrawal on behalf of EUCEB and GGM

2 Testing of flexible sheets for waterproofing and thermal insulation products (system of assessment and verification of constancy of performance 3) within the scope of the Regulation (EU) No 305/2011 laying down harmonised conditions for the marketing of construction products (Construction Products Regulation)

Decision / resolution of the commission	System [1)]	Technical specification
1999/90/EC Membranes – Roof underlays (in buildings)	3	**EN 13859-1:2010** Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing
1999/90/EC Membranes – Water vapour control layers (in buildings)	3	**EN 13859-1:2010** Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 1: Underlays for discontinuous roofing
		EN 13859-2:2010 Flexible sheets for waterproofing - Definitions and characteristics of underlays - Part 2: Underlays for walls
		EN 13984:2013 Flexible sheets for waterproofing - Plastic and rubber vapour control layers - Definitions and characteristics
1999/91/EC Thermal insulating products (factory-made products and products intended to be formed in-situ)	3	**EN 13162:2012+A1:2015** Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification
		EN 13163:2012+A1:2015 Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products - Specification
		EN 13164:2012+A1:2015 Thermal insulation products for buildings - Factory made extruded polystyrene foam (XPS) products - Specification
		EN 13165:2012+A2:2016 Thermal insulation products for buildings - Factory made rigid polyurethane foam (PU) products – Specification
		EN 13166:2012+A2:2016 Thermal insulation products for buildings - Factory made phenolic foam (PF) products – Specification

Decision / resolution of the commission	System [1)]	Technical specification
1999/91/EC Thermal insulating products (factory-made products and products intended to be formed in-situ)	3	**EN 13167:2012+A1:2015** Thermal insulation products for buildings - Factory made cellular glass (CG) products - Specification
		EN 13168:2012+A1:2015 Thermal insulation products for buildings - Factory made wood wool (WW) products - Specification
		EN 13169:2012+A1:2015 Thermal insulation products for buildings - Factory made expanded perlite board (EPB) products - Specification
		EN 13170:2012+A1:2015 Thermal insulation products for buildings - Factory made products of expanded cork (ICB) - Specification
		EN 13171:2012+A1:2015 Thermal insulation products for buildings - Factory made wood fibre (WF) products - Specification
		EN 14303:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made mineral wool (MW) products - Specification
		EN 14304:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made flexible elastomeric foam (FEF) products - Specification
		EN 14305:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made cellular glass (CG) products - Specification

Decision / resolution of the commission	System [1)]	Technical specification
1999/91/EC Thermal insulating products (factory-made products and products intended to be formed in-situ)	3	**EN 14306:2009 + A1:2013** Thermal insulation products for building equipment and industrial installations - Factory made calcium silicate (CS) products - Specification
		EN 14307:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made extruded polystyrene foam (XPS) products - Specification
		EN 14308:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made rigid polyurethane foam (PUR) and polyisocyanurate foam (PIR) products - Specification
		EN 14309:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made products of expanded polystyrene (EPS) - Specification
		EN 14313:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made polyethylene foam (PEF) products - Specification
		EN 14314:2009 + A1:2013 Thermal insulation products for building equipment and industrial installations - Factory made phenolic foam (PF) products - Specification
		EN 14315-1:2013 Thermal insulating products for buildings - In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam spray system before installation

Decision / resolution of the commission	System [1)]	Technical specification
1999/91/EC Thermal insulating products (factory-made products and products intended to be formed in-situ)	3	**EN 14316-1:2004** Thermal insulation products for buildings - In-situ thermal insulation formed from expanded perlite (EP) products - Part 1: Specification for bonded and loose-fill products before installation
		EN 14317-1:2004 Thermal insulation products for buildings - In-situ thermal insulation formed from exfoliated vermiculite (EV) products - Part 1: Specification for bonded and loose-fill products before installation
		EN 14318-1:2013 Thermal insulating products for buildings - In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam dispensed system before installation
		EN 14319-1:2013 Thermal insulating products for building equipment and industrial installations - In-situ formed dispensed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam dispensed system before installation
		EN 14320-1:2013 Thermal insulating products for building equipment and industrial installations - In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products - Part 1: Specification for the rigid foam spray system before installation
		EN 14933:2007 Thermal insulation and light weigth fill products for civil engineering applications - Factory made products of expanded polystyrene (EPS) - Specification

Decision / resolution of the commission	System [1)]	Technical specification
1999/91/EC Thermal insulating products (factory-made products and products intended to be formed in-situ)	3	**EN 14934:2007** Thermal insulation and light weight fill products for civil engineering applications - Factory made products of extruded polystyrene foam (XPS) - Specification
		EN 15501:2013 Thermal insulation products for building equipment and industrial installations - Factory made expanded perlite (EP) and exfoliated vermiculite (EV) products - Specification
		EN 15599-1:2010 Thermal insulation products for building equipment and industrial installations - In-situ thermal insulation formed from expanded perlite (EP) products - Part 1: Specification for bonded and loose-fill products before installation
		EN 15600-1:2010 Thermal insulation products for building equipment and industrial installations - In-situ thermal insulation formed from exfoliated vermiculite (EV) products - Part 1: Specification for bonded and loose-fill products before installation
		ETA-98/0009 Insulation panels and insulation felts

[1)] *of assessment and verification of constancy of performance*

The requirements for a testing laboratory are fulfilled according to article 43 of the Construction Products Regulation. Testing methods, which are necessary for determining the product type and cannot be executed by the holder of the certificate, are described in the list of subcontractors.

The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use product standards with different issue dates.

3 Tests of reaction to fire of construction products, for which the reference to a relevant harmonised technical specification is not required (chapter 3. Annex V, (EU) No 305/2011)*

3.1 Reaction to fire

EN ISO 11925-2:2010	Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test *(here: Euro-class E)*	
	In connection with:	
	DIN EN 13501-1 2010-01	*Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

Testing methods within the standard, which cannot be executed by the holder of the certificate, are described in the list of subcontractors.

Abbreviations used:

ASTM	American Society for Testing and Materials
EN	European Standards
EUCEB	European Certification Board for Mineral Wool Products
ETA	European technical approval
GGM	Gütegemeinschaft Mineralwolle e.V.
ISO	International Standardization Organization
va-	In house method of the CAB