Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-17999-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **10.12.2021**

Date of issue: 21.01.2022

Holder of certificate:

Institut für Kalk- und Mörtelforschung e.V.
Annastraße 67-71, 50968 Köln

Tests in the fields:

Chemical-tests of lime and feed lime, limestone, aggregates, mortar with atomic spectrometry, titration, electro-chemical test method, gravimetry and photometry; selected tests to determinate sum parameter and physical charateristics;
Applications- /materials engineering – tests of lime, aggregates and mortar, and rheological tests, density- and surface area analysis, testing of grain size distribution and of grain shape, testing of permeation and diffusion of mortar and thermal insulation composite systems (ETICS), tensile- and pressure strength tests, tests of physical characteristics, tests of petrography and thermal properties, optical testing;

Testing of construction adhesives (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)

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 testing methods within the flexible scope of accreditation.

The management system requirements in DIN EN ISO/IEC 17025 are written in language relevant to operations of testing laboratories 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

1 Chemical testing*

1.1 Testing of lime and feed lime, limestone and aggregates using atomic spectroscopy

DIN EN ISO 15587-1 2002-07	Water quality - Digestion for the determination of selected elements in water - Part 1: Aqua regia digestion
DIN EN 12485 2017-10	Chemicals used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime, half-burnt dolomite, magnesium oxide and calcium magnesium carbonate and dolomitic lime - Test methods, *here:* 5.1 - Fusion with lithium tetraborate 5.2 - Extraction with hydrochloric acid 5.3 - Microwave digestion with nitric acid 6.7 - Water-insoluble matter 6.10 - Determination of sulfate 6.11 - Determination of solubility index by conductivity 7.2 - Determination of major and minor constituents by ICP-OES) 8.1 - Determination of lead, cadmium, chromium and nickel by AAS graphite tube technique 8.3 - Determination of mercury, arsenic, antimony and selenium by AAS hydride technique 8.4 - Determination of mercury by cold-vapour technique)
BVK test method anthology, Part 3 2002-08	Lime, chemical analyses - atomic absorption spectrometric and atomic emission spectrometric methods, *here:* 7.1 - Fusion with lithium tetraborate 7.2 - Microwave digestion for the determination of trace elements 7.3 - Pressure digestion for the determination of trace elements 8.2 Determination of minor constituents by ICP-OES 9.1 - Determination of trace elements by AAS graphite furnace technique 9.2 - Determination of trace elements by ICP-OES 9.3 - Determination of arsenic, antimony and selenium by AAS hydride technique 9.4 - Determination of mercury by AAS cold-vapour technique
VDLUFA, Method book Volume II.1 1995	Testing of fertiliser, *here:* 9.7.2 – Thallium using Graphitrohr-AAS, amend 2004

1.2 Testing of lime, limestone, aggregates and mortar using titration

DIN EN 459-2 2021-09	Building lime - Part 2 Test methods, *here:* 6.3 - Determination of calcium oxide (CaO) and magnesium oxide (MgO) 6.9 - Available lime
DIN EN 1015-17 2005-01	Methods of test for mortar for masonry - Part 17: Determination of water-soluble chloride content of fresh mortar
DIN EN 12485 2017-10	Chemicals used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime, half-burnt dolomite, magnesium oxide and calcium magnesium carbonate and dolomitic lime - Test methods, *here:* 6.5 - Determination of content of water-soluble calcium oxide and calcium hydroxide (reference method) 6.6 - Determination of sugar-soluble calcium oxide or calcium hydroxide (alternative method) 6.8 - Determination of free CaO 6.9 - Determination of calcium oxide and magnesium oxide
BVK test method anthology, Part 1 2002-08	Chemical, mortar technology and physical tests - C 01 - Rapid determination of calcium oxide content (total alkalinity) C 03 - Method for the determination of unbound lime content and for the determination of the water-soluble content of high-calcium limes with titration machines
BVK test method anthology, Part 2 2002-08	Lime, chemical analyses - titrimetric, gravimetric and gas volumetric methods, *here:* 8.1 - Calcium oxide, magnesium oxide
VDLUFA, Method book Volume I 1995	Testing of fertiliser, *here:* 6.4 - Determination of reactivity of calcium carbonates

1.3 Testing of lime, limestone, aggregates and mortar with electrochemical method

DIN EN 1744-1 2013-03	Tests for chemical properties of aggregates - Part 1: Chemical analysis, *here:* 8 - Determination of water-soluble chloride by potentiometry

BVK test method anthology, Part 1 2002-08	Chemical, mortar technology and physical tests - C 05 - Determination of reactivity of powdered limestone compared to acidic media C 06 - Determination of the dissolving rate of lime milk and hydrated lime using conductivity measurement

1.4 Testing of lime, limestone and aggregate using gravimetry

DIN EN 459-2 2021-09	Building lime - Part 2 Test methods, *here:* 6.7 - Gravimetric determination of carbon dioxide 6.4 - Determination of sulphate (expressed as SO_3) 6.5 - Free water 6.8 - Loss on ignition
DIN EN 1097-5 2008-06 Corrigendum 1 2008-09	Tests for mechanical and physical properties of aggregates - Part 5: Determination of the water content by drying in a ventilated oven
DIN EN 1744-1 2013-03	Tests for chemical properties of aggregates - Part 1: Chemical analysis, *here:* 10 - Determination of water-soluble sulphates 11 - Determination of total sulphur content 12 - Determination of acid-soluble sulphates 16 - Determination of water solubility
DIN EN 12485 2017-10	Chemicals used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime, half-burnt dolomite, magnesium oxide and calcium magnesium carbonate and dolomitic lime - Test methods, *here:* 6.1 - Determination of free water 6.2 - Loss on ignition at 450 °C 6.3 - Determination of carbon dioxide 6.4 - Determination of residue insoluble in hydrochloric acid 6.11 - Determination of solubility index by conductivity
BVK test method anthology, Part 2 2002-08	Lime, chemical analyses - titrimetric, gravimetric and gas volumetric methods, *here:* 9.1 - Loss on ignition 9.2 - Free water 9.5 - Determination of HCl-insoluble and soluble silicic acid 9.6 - Determination of sulphur as SO_3 (SO_4^{2-},S^{2-})

1.5 Determination of physical characteristics for testing of lime, limestone and aggregates

DIN EN 459-2 2021-09	Building lime - Part 2 Test methods, *here:* 6.6 - Volumetric determination of carbon dioxide 7.4 - Soundness 7.4.2 - For hydrated lime and all types of lime with hydraulic properties 7.4.2.1 - Reference method (tablet method) 7.4.2.2 - Alternative method (LeChatelier method) 7.4.2.3 - For hydraulic limes with a SO3 content larger than 3 % and up to 7 % (testing based on the cold water test) 7.4.3 - For hydrated lime, high-calcium lime putty and dolomitic hydrated lime with particles larger than 0.2mm 7.4.4 - For unslaked lime, lime putty, dolomite lime and dolomitic hydrated lime (in heating cabinet) 7.5 - Setting times 7.6 – reactivity 7.8.2.2 - Mixing of mortar 7.8.2.3 - Flow diameter 7.8.3 - Water demand for values of flow and penetration
DIN EN 1744-4 2005-10	Tests for chemical properties of aggregates - Part 4: Determination of water susceptibility of fillers for bituminous mixtures
DIN EN 13639 2002-07 Corrigendum 1 2006-09	Determination of total organic carbon in limestone
DIN EN 15933 2012-11	Sludge, treated biowaste and soil – Determination of pH
DIN 53163 1988-07	Testing of pigments and extenders; determination of lightness of extenders and white pigments in powder form
BVK test method anthology, Part 2 2002-08	Lime, chemical analyses - titrimetric, gravimetric and gas volumetric methods, *here:* 9.4 Carbon dioxide (CO_2)

1.6 Determination of sum parameters of aggregates

DIN EN 1744-1 2013-03	Tests for chemical properties of aggregates - Part 1: Chemical analysis, *here:* 15 - Determination of organic components affecting the setting and the hardening of cement

2 Applications- /materials engineering*

2.1 Rheological testing of lime, aggregates and mortar

DIN EN 1015-3 2007-05	Methods of test for mortar for masonry - Part 3: Determination of consistence of fresh mortar (by flow table)
DIN EN 1015-4 1998-12	Methods of test for mortar for masonry - Part 4: Determination of consistence of fresh mortar (by plunger penetration)
DIN EN 1015-9 2007-05	Methods of test for mortar for masonry - Part 9: Determination of workable life and correction time of fresh mortar
DIN EN 12004-2 2017-05	Adhesives for ceramic tiles – Part 2: Test methods; *here:* 8.1 - Determination of open time *(withdrawn standard DIN EN 1346)* 8.2 - Determination of slip *(withdrawn standard DIN EN 1308)*
DIN EN 13179-2 2000-11	Tests for filler aggregate used in bituminous mixtures - Part 2: Bitumen number
DIN EN 13279-2 2004-10	Gypsum binders and gypsum plasters - Part 2: Test methods: 4.4 – determination of begin to harden
DAfStb Guidelines Part 2 (SCC guidelines) 2003-11	DAfStb - Self-compacting concrete; SCC guidelines, *here:* P.1 - Determination of the β_P value according to Okamura P.2 - Determination of the water demand according to Puntke

2.2 Testing of the density- and surface analyses of lime, aggregates, masonry units and mortar

DIN ISO 9277 2003-05	Determination of the specific surface area of solids by gas adsorption using the BET method

DIN EN 196-2 2013-10	Method of testing cement - Part 2: Chemical analysis of cement, *here:* 4.4.2 – Determination of sulfate 4.5.12 - Determination of calcium oxide by EGTA (reference method) 4.5.13 - Determination of magnesium oxide by DCTA (reference method) 4.5.14 - Determination of calcium oxide by EDTA (alternative method) 4.5.15 - Determination of magnesium oxide by EDTA (alternative method) 4.5.16 – Determination of chloride 4.5.17 - Determination of carbon dioxide (reference method) 4.5.19.6.2 - Equivalent sodium oxide content
DIN EN 196-3 2017-03	Methods of testing cement - Part 3: Determination of setting times and soundness, *here:* 6 - Determination of setting times 7 - Soundness test
DIN EN 196-6 2019-03	Methods of testing cement - Part 6: Determination of fineness
DIN EN 459-2 2021-09	Building lime - Part 2 Test methods, *here:* 7.3 - Bulk density
DIN EN 772-10 1999-04	Methods of test for masonry units – Part 10: Detremination of moisture content of calcium silicate and autoclaved aerated concrete units
DIN EN 1015-6 2005-07	Methods of test for mortar for masonry - Part 6: Determination of bulk density of fresh mortar
DIN EN 1015-7 1998-12	Methods of test for mortar for masonry - Part 7: Determination of air content of fresh mortar
DIN EN 1015-10 2007-05	Methods of test for mortar for masonry - Part 10: Determination of dry bulk density of hardened mortar
DIN EN 1097-4 2008-06	Tests for mechanical and physical properties of aggregates - Part 4: Determination of the voids of dry compacted filler
DIN EN 1097-7 2008-06 Corrigendum 2008-09	Tests for mechanical and physical properties of aggregates - Part 7: Determination of the density of filler - Pycnometer method

DIN EN 1602 2013-05	Thermal insulating products for building applications – determination of the apparent density
DIN EN 1607 2013-05	Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces
WTA Merkblatt 2-9 -20/D 2020-03	Renovation mortar systems (*here:* 6.3.10 Porosity)

2.3 Testing of particle size distribution and particle shape of lime, aggregate and mortar

DIN EN 459-2 2021-09	Building lime - Part 2: Test methods 7.1 - Particle size by dry sieving 7.2 - Particle size by air-jet sieving
DIN EN 933-9 2013-07	Tests for geometrical properties of aggregates - Part 9: Assessment of fines - Methylene blue test
DIN EN 933-10 2009-10	Tests for geometrical properties of aggregates - Part 10: Assessment of fines - Grading of filler aggregates (air jet sieving)
DIN EN 1015-1 2007-05	Methods of test for mortar for masonry - Part 1: Determination of particle size distribution (by sieve analysis)
DIN EN 12485 2017-10	Chemicals used for treatment of water intended for human consumption - Calcium carbonate, high-calcium lime, half-burnt dolomite, magnesium oxide and calcium magnesium carbonate and dolomitic lime - Test methods, *here:* 4 - Determination of screen oversize of high-calcium lime 4.1 - Air-jet sieving method 4.2 - Wet sieving method
EAD 040083-00-0404 2019-01	External thermal insulation composite systems with rendering, *here:* A.6.5 - Dry extract A.6.6 - Ash content
ETAG 004 2013-02	Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* C.1.1.2 - Dry extract C.1.1.3 - Ash content *(withdrawn)*

2.4 Testing of the permeation and diffusion of mortar and thermal insulation composite systems (ETICS)

DIN EN ISO 12572 2017-05	Hygrothermal performance of building materials and products: Determination of water vapour transmission properties – Cup method
DIN EN ISO 15148 2018-12	Hygrothermal performance of building materials and products - Determination of water absorption coefficient by partial immersion
DIN EN 772-21 2011-07	Methods of test for masonry units – Part 21: Determination of water absorption of clay and calcium silicate masonry units by cold water absorption
DIN EN 1015-18 2003-03	Methods of test for mortar for masonry - Part 18: Determination of water absorption coefficient due to capillary action of hardened mortar
DIN EN 1015-19 2005-01	Methods of test for mortar for masonry - Part 19: Determination of water vapour permeability of hardened rendering and plastering mortars
EAD 040083-00-0404 2019-01	External thermal insulation composite systems with rendering, *here:* 2.2.5 - Water absorption (capillarity test) 2.2.9 - Water vapour permeability (resistance to water vapour diffusion)
ETAG 004 2013-02	Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* 5.1.3.1 - Water absorption (capillarity test) 5.1.3.4 - Water vapour permeability (resistance to water vapour diffusion) *(withdrawn)*
WTA Merkblatt 2-9 -20/D 2020-03	Renovation mortar systems, *here:* 6.3.7 - Water absorption 6.3.8 - Water penetration

2.5 Tensile- and pressure strength tests of aggregates, mortar and thermal insulation composite systems (ETICS)

DIN EN 196-1 2016-11	Methods of testing cement - Part 1: Determination of strength

DIN EN 459-2 2021-09	Building lime - Part 2: Test methods, *here:* 7.11 - Compressive strength
DIN EN 1015-11 2020-01	Methods of test for mortar for masonry - Part 11: Determination of flexural and compressive strength of hardened mortar
DIN EN 1015-12 2016-12	Methods of test for mortar for masonry - Part 12: Determination of adhesive strength of hardened rendering and plastering mortars on substrates
DIN EN 1052-3 2007-06	Methods of test for masonry – Part 3: Determination of initial shear strength; *here:* method B
DIN EN 12004-2 2017-05	Adhesives for ceramic tiles – Part 2: Test methods; *here:* 8.3 - Determination of tensile adhesion strength for cementitious adhesive (C) *(withdrawn standard DIN EN 1348)* 8.4 - Determination of shear adhesion strength of dispersion adhesives (D) *(withdrawn standard DIN EN 1324)* 8.5 - Determination of shear adhesion strength of reaction resin adhesives (R) *(withdrawn standard DIN EN 12003)* 8.6 – Detremination of transverse deformation for cementious adhesives and grouts (C) *(withdrawn standard DIN EN 12002)*
DIN 18555-5 1986-03	Testing of mortars containing mineral binders; hardened mortars; determination of bond shear strength of masonry mortars
DIN 18555-9 2019-04	Testing of mortars containing mineral binders - Part 9: Hardened mortars; determination of the mortar compressive strength in the bed joint
EAD 040083-00-0404 2019-01	External thermal insulation composite systems with rendering, *here:* Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* 2.2.8 - Impact resistance 2.2.11.1 - Bond strength between base coat and insulation product 2.2.11.2 - Bond strength test between adhesive and substrate 2.2.11.3 - Bond strength test between adhesive and insulation product 2.2.20 - Bond strength after ageing

ETAG 004 2013-02	Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* 5.1.3.3 - Impact resistance 5.1.4.1.1 - Bond strength between base coat and insulation product 5.1.4.1.2 - Bond strength test between adhesive and substrate 5.1.4.1.3 - Bond strength test between adhesive and insulation product 5.1.7.1 - Bond strength after ageing *(withdrawn)*

2.6 Testing of physical characteristics of lime, aggregates, mortar and thermal insulation composite systems (ETICS)

DIN EN ISO 1716 2018-10	Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value)
DIN EN 413-2 2005-08	Masonry cement - Part 2: Test methods, *here:* 4 - Determination of setting times 5 - Preparation of standard mortar 5.2 - Consistence of fresh mortar by plunger apparatus (reference method) 6 - Determination of the water retention value 7 - Determination o fair content
DIN EN 459-2 2021-09	Building lime - Part 2 Test methods, *here:* 7.9 - Water retention value 7.10 - Determination of air content
DIN EN 12664 2001-05	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Dry and moist products with medium and low thermal resitance
DIN EN 12667 2001-05	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Products of high and medium thermal resistance
DIN EN 12939 2001-02	Thermal performance of building materials and products – Determination of thermal resistance by means of guarded hot plate and heat flow meter methods – Thick products of high and medium thermal resistance
DIN 18555-7 2019-04	Testing of mortars containing mineral binders; determination of water retentivity of freshly mixed mortar by the filter plate method

WTA Merkblatt 2-9 -20/D 2020-03	Renovation mortar systems, *here:* 6.3.11 - Salt resistance

2.7 Testing of the petrography of lime, aggregates and mortar

DIN EN 932-3 2003-12	Tests for general properties of aggregates - Part 3: Procedure and terminology for simplified petrographic description

2.8 Testing of the thermal properties of aggregates and mortar

EAD 040083-00-0404 2019-01	External thermal insulation composite systems with rendering, *here:* 2.2.7 - Freeze-thaw behaviour
ETAG 004 2013-02	Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* 5.1.3.2.2 Freeze-thaw behaviour *(withdrawn)*

2.9 Optical testing of thermal insulation composite systems (ETICS)

EAD 040083-00-0404 2019-01	External thermal insulation composite systems with rendering, *here:* 2.2.6 - Hygrothermal behaviour
ETAG 004 2013-02	Guideline for European technical approval of external thermal insulation composite systems with rendering, *here:* 5.1.3.2.1 Hygrothermal behaviour *(withdrawn)*

3 In-house methods – chemical testing

3.1 Testing of lime, limestone, aggregates and mortar by means of dimensional analysis

QMAA-C2-03-015 2018-07	Determination of calcium after lithium tetraborate digestion by tiration with EGTA
QMAA-C2-03-042 2008-07	Determination of sulphite using titration

3.2 Testing of lime, limestone, aggregates and mortar with electrochemical methods

QMAA-C2-03-036 2012-08	Determination of fluoride in solids using steam distillation
QMAA-C2-03-096 2018-07	Determination of chloride in lime and mortar products by means of titration and potentiometric end point determination
QMAA-C2-03-217 2014-01	Determination of carbon dioxide in limes (ELTRA CS 2000)
QMAA-C2-03-218 2018-07	Determination of sulphat in limes using IR-detection (ELTRA CS 2000)

3.3 Determination of physical characteristics for testing lime, limestone and aggregates

QMAA-C2-03-219 2018-07	Determination of total organic carbon (TOC) using IR-detection

3.4 Testing of lime, limestone, aggregates and mortar by means of photometry

QMAA-C2-03-017a 2014-01	Determination of water-soluble chromium (VI) in lime products
QMAA-C2-03-017b 2014-01	Determination of water-soluble chromium (VI) in ready-mixed dry mortar

4 In-house methods - Applications- /materials engineering

4.1 Testing the particle size distribution and grain shape of lime, aggregates and mortar

QMAA-C2-02-003 2019-09	Operation of Sympatec device He/Ne laser diffraction
QMAA-C2-03-237 2011-02	Sedimentation analyses for the determination of SWeRF and SWeRFCS content in stone meal, fine lime and hydrated lime
QMAA-C2-03-238 2011-02	Laser diffraction for the determination of SWeRF value

4.2 Testing of physical charateristics of lime, aggregates, mortar and thermal insulation composite systems (ETICS)

QMAA-C2-03-059 2018-07	Determination of specific surface area of lime by gas adsorption method (BET)
QMAA-C2-03-078 2018-07	Determination of the specific surface area of Blaine limestone flour

4.3 Examination of petrography of lime, aggregates and mortar

QMAA-C2-03-236 2018-06	Determination of the quartz content using X-ray diffraction analysis

5 Testing of construction adhesives (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)]	Technische Spezifikation
1999/470/EC Construction adhesives[2)]	3	**EN 12004-1:2007+A1:2012** Adhesives for ceramic tiles – Part 1: Requirements, assessment and verification of constancy of performance, classification and marking

[1)] System of assessment and verification of consistency of performance
[2)] For internal and external uses in buildings and civil engineering works

The requirements for a testing laboratory are fulfilled according to article 43 of the Construction Products Regulation.

Without prior approval by the DAkkS German Accreditation Body, the testing laboratory body is permitted to use new revisions of harmonised technical specifications.

Abbreviations used:

BVK	Association of the German Lime Industry (Bundesverband der Deutschen Kalkindustrie e. V.)
DAfStb-Guidelines	Guidelines of the German Committee for Reinforced Concrete (Deutscher Ausschuss für Stahlbeton)
DIN	German Institute for Standardisation (Deutsches Institut für Normung)
EAD	European Assessment Document
EN	European Standardisation (Europäische Normung)
ETAG	European Technical Approval Guidelines
QMAA	In-house method of the Institute für Kalk- und Mörtelforschung e.V. (Quality management manufacturing procedure)
VDLUFA	Association of German Agricultural Analytic and Research Institutes (Verband Deutscher landwirtschaftlicher Untersuchungs- und Forschungs-anstalten)
WTA	Scientific & Technological study group for the restoration of buildings and preservation of monuments (Wissenschaftlich-Technische Arbeitsgemein-schaft für Bauwerkserhaltung und Denkmalpflege e. V.)