DAkkS
Deutsche
Akkreditierungsstelle

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

VDZ Service GmbH
Toulouser Allee 71, 40476 Düsseldorf

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out tests in the following fields:

Chemical, chemical-physical and physical-technological analysis of building materials and materials such as concrete, binders, granulated blast furnace slag, clinker, mortar, cement, cementitious binders, solids, metallic materials, aqueous solutions

The accreditation certificate shall only apply in connection with the notice of accreditation of 20.05.2022 with the accreditation number D-PL-16069-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 12 pages.

Registration number of the certificate: **D-PL-16069-01-02**

Berlin,
20.05.2022

Dipl.-Ing. Gabriel Zrenner
Head of Department

Translation issued:
24.02.2023

Head of Department

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de/en/accredited-bodies-search.html.

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

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

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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) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council setting out the requirements for accreditation and market surveillance relating to the marketing of products. 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 Co-operation (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-16069-01-02 according to DIN EN ISO/IEC 17025:2018

Valid from: **20.05.2022**

Date of issue: 20.05.2022

Holder of certificate:

VDZ Service GmbH
Toulouser Allee 71, 40476 Düsseldorf

Tests in the fields:

Chemical, chemical-physical and physical-technological analysis of building materials and materials such as concrete, binders, granulated blast furnace slag, clinker, mortar, cement, cementitious binders, solids, metallic materials, aqueous solutions

Within the scope of accreditation marked *, the testing laboratory is permitted to apply the listed standardised or equivalent test methods with different versions without obtaining prior notification and consent from DAkkS.
The testing laboratory has an up-to-date list of all test methods within the flexible scope of accreditation.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.

The certificate together with the annex reflects the status as indicated by the date of issue.
The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de/en/content/accredited-bodies-dakks.

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

Chemical and chemical-physical testing *

DIN EN ISO 787-3 2001-09	General methods of test for pigments and extenders – Part 3: Determination of matter soluble in water; Hot extraction method
DIN EN ISO 787-9 2019-06	General methods of test for pigments and extenders - Part 9: Determination of pH value of an aqueous suspension
DIN EN ISO 787-13 2019-12	General methods of test for pigments and extenders - Part 13: Determination of water-soluble sulfates, chlorides and nitrates Modification: Determination by ion chromatography
DIN EN ISO 1158 1998-06	Determination of chlorine content
DIN EN ISO 10304-1 2009-07	Water quality – Determination of dissolved anions by liquid chromatography of ions – Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulphate
DIN EN ISO 10523 2012-04	Water quality - Determination of pH
DIN EN ISO 12846 2012-08	Water quality – Determination of mercury – Method using atomic absorption spectrometry (AAS) with and without enrichment
DIN EN ISO 14911 1999-12	Water quality – Determination of dissolved Li^+, Na^+, NH_4^+, K^+, $Mn^{2}+$, Ca^{2+}, Mg^{2+}, Sr^{2+} and Ba^{2+} using ion chromatography
DIN EN ISO 15587-2 2002-07	Water quality – Digestion for the determination of elements in water – Part 2: Nitric acid digestion
DIN EN ISO 16948 2015-09	Solid biofuels – Determination of total content of carbon, hydrogen and nitrogen (replacement for DIN EN 15104)
DIN EN ISO 17294-2 2014-12	Water quality – Application of inductively coupled plasma mass spectrometry – Part 2: Determination of 62 elements
DIN EN ISO 21644 2021-07	Solid recovered fuels - Methods for the determination of biomass content Annex B: Determination of biomass content using the selective dissolution method (SDM)
prDIN EN ISO 21654 2020-01	Solid recovered fuels - Determination of calorific value

DIN EN ISO 21656 2021-06	Solid recovered fuels - Determination of ash content
DIN EN ISO 21660-3 2021-06	Solid recovered fuels - Determination of moisture content using the oven dry method - Part 3: Moisture in general analysis sample
DIN EN ISO 21663 2021-03	Solid recovered fuels - Methods for the determination of carbon (C), hydrogen (H), nitrogen (N) and sulphur (S) by the instrumental method
DIN EN ISO 22167 2021-07	Solid recovered fuels - Determination of the content of volatile matter
DIN EN 196-2 2013-10	Method of testing cement - Part 2: Chemical analysis of cement Section 4.4.1: Determination of the loss on ignition Section 4.4.2: Determination of sulfate Section 4.4.3: Determination of the residue insoluble in hydrochloric acid and sodium carbonate Section 4.4.5: Determination of sulphide (Modification: Instead of the zinc sulphate solution, an ammoniacal cadmium chloride solution is used) Section 4.5.16: Determination of the chloride content Section 4.5.20: Determination of the alkali content (alternative method) Section 5: X-ray fluorescence chemical analysis
DIN EN 196-5 2011-06	Methods of testing cement – Part 5: Pozzolanicity test for pozzolanic cement
DIN EN 196-7 2008-02	Methods of testing cement – Part 7: Methods of taking and preparing samples of cement
DIN EN 196-10 2016-11	Methods of testing cement – Part 10: Determination of the water-soluble chromium (VI) content of cement
DIN EN 196-11 2019-03	Methods of testing cement - Part 11: Heat of hydration - Isothermal Conduction Calorimetry method
DIN EN 197-1 2011-11	Cement – Part 1: Composition, specifications and conformity criteria for common cements Section 3.1: Reactive calcium oxide (CaO) Section 3.2: Reactive silica (SiO_2)

DIN EN 450-1 2012-10	Fly ash for concrete – Part 1: Definition, specifications and conformity criteria Annex C: Determination of the content of soluble phosphate (P2O5)
DIN EN 451-1 2017-08	Method of testing fly ash - Part 1: Determination of free calcium oxide content
DIN EN 933-9 2013-07	Tests for geometrical properties of aggregates – Part 9: Assessment of fines – Methylene blue test
DIN EN 1097-5 2008-06 and 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 1484 2019-04	Water analysis - Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)
DIN EN 12878 2005 + AC:2006	Pigments for the colouring of building materials based on cement and/or lime – Specifications and methods of test Section 5.3: Loss on ignition *(standard withdrawn)*
DIN EN 13639 2017-12	Determination of total organic carbon in limestone Section 8: Furnace oxidation process with infrared detection (at low temperature) (alternative method no. 2)
DIN EN 13656 2003-01	Characterisation of waste – Microwave assisted digestion with hydrofluoric (HF), nitric (HNO_3) and hydrochloric (HCl) acid mixture for subsequent determination of elements in waste
DIN EN 13657 2003-01	Characterisation of waste – Digestion for subsequent determination of aqua regia soluble portion of elements in waste
DIN EN 14582 2016-12	Characterisation of waste – Halogen and sulphur content– Oxygen combustion in closed systems and determination methods
DIN EN 14918 2014-08	Solid biofuels – Determination of calorific value
DIN EN 15104 2011-04	Solid biofuels – Determination of total content of carbon, hydrogen and nitrogen – Instrumental methods *(standard withdrawn)*

DIN EN 15167-1 2006-12	Ground granulated blast furnace slag for use in concrete, mortar and grout – Part 1: Definitions, specifications and conformity criteria Annex A: Method of determining the moisture content of ground granulated blastfurnace slag
DIN EN 15400 2011-05	Solid recovered fuels – Determination of gross calorific value *(standard withdrawn)*
DIN EN 15402 2011-05	Solid recovered fuels – Determination of the content of volatile matter *(standard withdrawn)*
DIN EN 15403 2011-05	Solid recovered fuels – Determination of ash content *(standard withdrawn)*
DIN EN 15408 2011-05	Solid recovered fuels – Methods for determination of sulphur (S), chlorine (Cl), fluorine (F) and bromine (Br) content
DIN EN 15411 2011-11	Solid secondary fuels – Methods for the determination of the content of trace elements (As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mo, Mn, Ni, Pb, Sb, Se, Tl, V and Zn)
DIN EN 15414-3 2011-05	Solid recovered fuels – Determination of moisture content using the oven dry method – Part 3: Moisture in general analysis sample *(standard withdrawn)*
DIN EN 15440 2011-05	Solid recovered fuels – Methods for the determination of biomass content *(standard withdrawn)* Annex A: Determination of biomass content using the selective dissolution method
DIN EN 27888 1993-11	Water quality; determination of electrical conductivity
DIN 22022-1 2014-07	Solid fuels – Determination of contents of trace elements – Part 1: General rules, sampling and sample preparation – Preparation of samples for the analyses (dissolution method)
DIN 51718 2002-06	Testing of solid fuels – Determination of the water content and the moisture of analysis sample
DIN 51719 1997-07	Testing of solid fuels – Determination of ash content

DIN 51720 2001-03	Testing of solid fuels – Determination of volatile matter content
DIN 51732 2014-07	Testing of solid fuels – Determination of total carbon, hydrogen and nitrogen – Instrumental methods Modification: Also determination of sulphur
DIN 51900-1 2000-04 and Corrigendum 1 2004-02	Testing of solid and liquid fuels – Determination of gross calorific value by the bomb calorimeter and calculation of net calorific value – Part 1: General principles, apparatus, methods
DIN 51904 2012-11	Testing of carbonaceous materials – Determination of water content – Solid matters
DIN 52170-2 1980-02	Determination of composition of hardened concrete; hydrochloric acid insoluble, limestone and/or dolomite containing aggregate, materials used for the concrete not available
DIN 52170-3 1980-02	Determination of composition of hardened concrete; hydrochloric acid insoluble aggregate, materials used for the concrete not available
DIN Technical Report CEN/TR 196-4 2007-11	Methods of testing cement – Part 4: Quantitative determination of constituents
CEN/TS 16637-2 2014-11	Construction products - Assessment of release of dangerous substances - Part 2: Horizontal dynamic surface leaching test
DIN CEN/TS 17286 2019-07	Stationary source emissions - Mercury monitoring using sorbent traps Here only: Analysis
DAfStb Richtlinie Freisetzung, Stoffe 2020-06	Determination of the release of environmentally relevant substances from cementitious building materials in the dynamic surface leaching test
RAL Gütezeichen 724 2008-10	Recovered fuels Here only: Section 3.6: Determination of heavy metals
TRGS 613 10/2002 edition cancelled 12/2006	TRGS 613 – Substitute materials, substitute methods and restrictions of use for chromate-containing cements and chromate-containing cementitious preparations, photometric determination of Cr(VI) ion
VDI 3496 Blatt 1 (1982-04)	Measurement of gaseous emissions; Determination of basic nitrogen compounds ascertainable in sulphuric acid by absorption

VDI 4320 Blatt 2 (2012-01)	Measurement of atmospheric depositions – Determination of dust precipitation according to the Bergerhoff method
EPA 30B 2020-11	Determination of Total Vapor Phase Mercury Emissions From Coal-Fired Combustion Sources Using Carbon Sorbent Trabs Here only: Analysis
EPA 7473 2020-11	Mercury in Solids and Solutions by Thermal Decomposition, Amalgamation, and Atomic Absorption Spectrophotometry

Chemical and chemical-physical testing – in-house methods

In-house method A-01-029 2015-08	Determination of mercury with flow injection cold vapour AAS
In-house method A-01-040 2012-02	Fluoride determination according to Seel
In-house method A-01-045 2002-02	Gravimetric determination of sulphite content in solids
In-house method A-01-049 2002-02	Semi-quantitative determination of chloride in cement
In-house method A-01-082 2018-06	Determination of the carbon dioxide and water content in building materials and components using infrared absorption methods after combustion with ELTRA CW Multiphase
In-house method A-01-087 2020-11	X-ray fluorescence analysis for the determination of main and minor constituents in cement and other solids Determination of SiO_2, Al_2O_3, TiO_2, P_2O_5, Fe_2O_3, Mn_2O_3, CaO, MgO, SO_3, K_2O, Na_2O, S^{2-}, Cl^-, O_2 equivalent, C_3S, C_2S, C_3A, C_4AF, C_2F, KS, TM, SM, SG, CUE and calculation of the composition of cements with several main constituents
In-house method A-01-099 2017-03	Determination of the glass content of granulated blast furnace slag in accordance with ZKG International 47 (1994) issue 11, p. 658-661 Counting using light microscopy
In-house method A-14-001 2020-11	Phase analysis of cement by X-ray diffraction / Rietveld analysis
In-house method A-14-007 2020-11	Determination of granulated blast furnace slag content in cements by X-ray diffraction / Rietveld analysis

Physical-technological testing *

DIN EN ISO 6892-1 2017-02	Metallic materials – Tensile testing – Part 1: Method of test at room temperature (ISO 6892-1: 2009)
DIN EN 196-1 2016-11	Methods of testing cement – Part 1: Determination of strength
DIN EN 196-3 2017-03	Methods of testing cement – Part 3: Determination of setting times and soundness
DIN EN 196-6 2019-03	Methods of testing cement – Part 6: Determination of fineness
DIN EN 413-2 2016-12	Masonry cement – Part 2: Test methods Section 5.2: Determination of the consistency of fresh mortar with the consistometer (reference method) Section 5.3: Determination of the consistency of fresh mortar with the flow table (alternative method) Section 6: Determination of water retention capacity Section 7.2 Determination of air content – Pressure balance method
DIN EN 445 1996-07	Grout for prestressing tendons – Test methods
DIN EN 450-1 2012-10	Fly ash for concrete – Part 1: Definition, specifications and conformity criteria Section 5.3.2: Determination of the activity index Section 5.3.5: Determination of initial set
DIN EN 932-1 1996-11	Test for general properties of aggregates – Part 1: Methods for sampling
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 1097-7 2008-06 and Corrigendum 1 2008-09	Tests for mechanical and physical properties of aggregates – Part 7: Determination of the particle density of filler – Pyknometer method
DIN EN 12350-2 2019-09	Testing fresh concrete – Part 2: Slump test

DIN EN 12350-3 2019-09	Testing fresh concrete – Part 3: Vebe test
DIN EN 12350-4 2019-09	Testing fresh concrete – Part 4: Degree of compactability
DIN EN 12350-5 2019-09	Testing fresh concrete – Part 5: Flow table test
DIN EN 12350-6 2019-09	Testing fresh concrete – Part 6: Density
DIN EN 12350-7 2019-09	Testing fresh concrete – Part 7: Air content – Pressure methods
DIN EN 12390-3 2019-10	Testing hardened concrete – Part 3: Compressive strength of test specimens
DIN EN 12390-5 2019-10	Testing hardened concrete – Part 5: Flexural strength of test specimens
DIN EN 12390-6 2010-09	Testing hardened concrete – Part 6: Tensile splitting strength of test specimens
DIN EN 12390-7 2019-10	Testing hardened concrete – Part 7: Density of hardened concrete
DIN EN 12390-8 2019-10	Testing hardened concrete – Part 8: Depth of penetration of water under pressure
DIN EN 12390-13 2014-06	Testing hardened concrete – Part 13: Determination of secant modulus of elasticity in compression
DIN EN 12878 2005 + AC:2006	Pigments for the colouring of building materials based on cement and/or lime - Specifications and methods of test Section 5.1.1: Solidification time Section 5.1.2: Compressive strength *(standard withdrawn)*
DIN EN 14651 2005-09 +A1:2007-12	Test method for metallic fibre concrete – Measuring the flexural tensile strength (limit or proportionality (LOP), residual)

DIN EN 14790 2017-05	Stationary source emissions - Determination of the water vapour in ducts - Standard reference method
DIN EN 15167-1 2006-12	Ground granulated blast furnace slag for use in concrete, mortar and grout - Part 1: Definitions, specifications and conformity criteria Section 5.3.2.2: Determination of time to initial set Section 5.3.2.3: Determination of the activity index
DIN 1048-1 1991-06	Test method for concrete, fresh concrete, fresh concrete temperature
DIN 1048-5 1991-06	Testing concrete; testing of hardened concrete (specimens prepared in mould) Section 7.5: Modulus of elasticity Section 7.7: Moisture content *(standard withdrawn)*
DIN 1164-11 2003-11	Special cement – Part 11: Composition, specification and conformity evaluation for cement with short setting time Annex A: Special test methods for SE cements A.1.2: Initial set A.1.3. Soundness A.2 Preparation of test specimens for strength testing
DIN 66133 1993-06	Determination of pore volume distribution and specific surface area of solids by mercury intrusion
DIN Technical Report CEN/TR 15177 2006-06	Testing the freeze-thaw resistance of concrete – Internal structural damage Section 7: Beam test Section 9: CIF method
DAfStb Heft 422:1991	Testing of concrete, recommendation and notes as a supplement to DIN 1048 – Duration of the ultrasonic pulse – Resonance frequency – Determination of carbonation depth
DAfStb Alkali-Richtlinie 2007-02	DAfStb guideline – Preventive measures against harmful alkali reaction in concrete (alkali guideline) Annex A: Mortar quick test (alternative method)
DAfStb Alkali-Richtlinie 2013-10	DAfStb guideline – Preventive measures against harmful alkali reaction in concrete (Alkali Guideline) Annex B.1: Quick test method (reference method) Annex B.2: Concrete test with mist chamber storage (40 °C) Annex C: Concrete test at 60 °C

DAfStb-Richtlinie BUmwS 2011-03	DAfStb guideline on concrete construction when handling substances hazardous to water (BUmwS) Annex A.2 Ingress of water-polluting substances into non-cracked concrete, determination of the penetration depth of water-polluting substances
BAW leaflet on chloride penetration resistance 2012 edition	BAW leaflet on chloride penetration resistance of concrete, chloride penetration resistance of concrete, chloride migration test
NF P15-433 1994-02	Test method of cement – Determination of shrinkage and swelling
NT BUILD 492 1999-11	Chloride migration test in accordance with NT BUILD 492

Physical-technological testing – in-house methods

In-house method A-04-001 2016-11	60 °C concrete test with alkali supply
In-house method A-04-002 2016-11	60 °C concrete test without alkali supply
In-house method A-07-004 2018-06	Determination of grain-size distribution of fine-grained substances with the air jet sieve machine
In-house method A-07-006 2011-12	Determination of grain-size distribution of fine-grained substances with the tower sieve machine
In-house method A-07-007 2018-12	Determination of grain-size distribution of powdery substances with the laser diffraction spectrometer (CILAS)
In-house method A-10-001 2018-12	Determination of sieve residue and production of grain fractions
In-house method A-10-025 2006-02	Determination of initial set with the "ToniSET" machine
In-house method A-10-034 2019-11	Determination of fineness with the Blaine machine "Dyckerhoff system"

In-house method A-10-047 2011-11	Fineness of fly ash for concrete in accordance with test methods for geometric properties of aggregates as per DIN EN 933-10
In-house method A-14-034 2016-01	Testing of the sulphate resistance of cement using the Wittekindt, SVA and CEN methods

Abbreviations used:

BAW	Bundesanstalt für Wasserbau (Federal Waterways Engineering and Research Institute)
DAfStb	Deutscher Ausschuss für Stahlbeton (German Committee for Structural Concrete)
DIN	Deutsches Institut für Normung e.V. (German Institute for Standardisation)
EN	European standard
EPA	United States Environmental Protection Agency
ISO	International Organization for Standardization
NF	Norme française (French Standard)
NT	Nordtest
TRGS	Technische Regeln für Gefahrstoffe (Technical Rules for Hazardous Substances)
VDI	Verein Deutscher Ingenieure (Association of German Engineers)