SCHOTT

Accredited Testing Laboratories SCHOTT

Complete list of all accredited testing methods in the flexible scope according to the conformity assessment body D-PL-14645-01-00

The testing laboratory hereby publishes the list of all testing methods in the flexible scope of accreditation of the CAB with reference to
Working area FB 4.1 Chemical Products and Combustibles,
Partial certificate annex D-PL-14645-01-01

Coding:	01_LIST_00003 (Excerpt)
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Updates/changes are marked in **green**. Newly introduced procedures according to category A, B or C are marked with "NEW in flexible scope".

Within the marked test scopes, the testing laboratory is permitted to do the following without having to inform and obtain prior approval from DAkkS:

[Flex A] The extension of the scope of accreditation by standardized or equivalent test methods with different issue dates within a defined testing scope.

[Flex B] Includes category A as well as the extension of the scope of accreditation by standardized or equivalent test methods within a defined test scope. Category B includes - where applicable - new specifications for test objects, provided that these can be determined using the procedure within the test scope.

[Flex C] Includes categories A and B as well as the extension of the scope of accreditation by modified as well as further and newly developed test methods (e.g. in-house procedures) within a defined test area.

The original complete certificate and the partial certificates issued by DAkkS for the above-mentioned conformity assessment body can be found at www.dakks.de, Accredited Bodies, D-PL-14645-01-00. The testing procedures listed there are exemplary.

Tests are carried out in the following working areas:

Determination of the concentrations and valences of elements in glass, glass ceramics, ceramics, and other inorganic materials, glass and ceramic raw materials, materials for the treatment of glass surfaces (e.g. decorations), as well as other samples/materials (e.g., eluates, metals) in connection with glass production
Testing the chemical resistance of glass, glass ceramics, decorations on glass or glass ceramics, and other materials

Locations:

SCHOTT AG
Accredited Testing Laboratories SCHOTT
Otto-Schott-Straße 2, 55127 Mainz

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400 York Ave, Duryea/PA 18642 USA

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 for performing the conformity assessment activities listed in this annex. The testing laboratory fulfills any additional legal and normative requirements, including those in relevant sectoral programs, provided that these are expressly confirmed below.

The requirements for the management system are written in the relevant language and are fully compliant with the principles of DIN EN ISO 9001.

Laboratory location Otto-Schott-Straße 2, 55127 Mainz

1 Determination of the concentrations and valence states of elements in glasses, glass ceramics, ceramics and other anorganic materials, glass- and ceramic raw materials, materials for treatment of glass surfaces (e.g. decoration colors), as well as other samples/materials (e.g. water, eluates, metals) in combination glass production

1.1 Sample preparation, digestion methods (open digestions, melting digestion techniques, digestions in closed systems) [Flex C]

ISO 12677 2011-10	Chemical analysis of refractory products by X-ray fluorescence (XRF) - Fused cast-bead method, Chapter 6-9
ISO 21587-1 2007-03	Chemical analysis of aluminosilicate refractory products (alternative to the X-ray fluorescence method) - Part 1: Apparatus, reagents, dissolution and gravimetric silica, Chapter 4
DIN 51001 2003-08	Testing of oxidic raw materials and basic materials - General bases of work for X-ray fluorescence method (XRF), Chapter 3-5
DIN 51001 Beiblatt 2010-05	Testing of oxidic raw materials and basic materials - General bases of work for X-Ray fluorescence method (XRF) - General survey on disintegration methods referred to groups of materials for the determination of test specimens for XRF
DIN 52331 1995-05	Testing of glass – Crushing and drying of samples for chemical analysis
DIN 52340-3 1990-07	Testing of glass - Chemical analysis of colorless soda-lime-glass with SiO2, CaO, MgO and Na2O as main constituents; Decomposition methods
DIN 52342-2 1980-01	Testing of raw materials for the production of glass - Chemical analysis of arenaceous quartz with at least 98 % silica - Part 2: Fusion process for the determination of Al2O3, Fe2O3 and TiO2 as well as CaO, MgO, Na2O and K2O - (Modification: Application for further oxides)

01_SOP_00480 2025-08	Special digestion procedures for glasses, glass ceramics, ceramics, raw materials and other materials

1.2 by wet chemistry procedures

1.2.1 by Titrimetry [Flex C]

ISO 21078-1 2008-01	Determination of boron (III) oxide in refractory products - Part 1: Determination of total boron (III) oxide in oxidic materials for ceramics, glass and glazes (Modification: Digestion, no reprecipitation)
YBB00232003-2015 2015-00	Determination of Boron Oxide
01_SOP_00475 2025-08	Titrimetric determination of main and minor components in glasses, glass ceramics and raw materials

1.2.2 by Gravimetry [Flex C]

ISO 247-1 2018-07	Rubber - Determination of ash - Part 1: Combustion method
ISO 8871-2 2020-05	Elastomeric parts for parenterals and for devices for pharmaceutical use - Part 2: Identification and characterization
DIN 51081 2002-12	Testing of oxidic raw materials and materials - Determination of change in mass on ignition (Modification: material-related temparatures, sample amounts)
DIN 52340-2 1974-01	Testing of glass - Chemical analysis of colorless soda-lime-glass with SiO2, CaO, MgO and Na2O as main constituents; Part 2: Determination SiO2
01_SOP_00479 2025-08	Gravimetric determination of main and minor components in glasses, glass ceramics and raw materials

1.3 by spectroscopic methods (FAAS, CV-AAS, ICP-OES, ICP-MS, UV-VIS)

1.3.1 Atomic Absorption Spectrometry (FAAS, CV-AAS) [Flex C]

ISO 10058-3 2008-12	Chemical analysis of magnesite and dolomite refractory products (alternative to the X-ray fluorescence method) - Part 3: Flame atomic absorption spectrophotometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES)
DIN 52340-11 1997-11	Testing of glass - Chemical analysis of colorless soda-lime-glass with SiO2, CaO, MgO und Na2O as main constituents- Part 11: Determination of BaO, CaO, MgO, Al2O3, Fe2O3, Cr2O3 with FAAS and Na2O and K2O with FAES (Modification: Applicatin on special glasses and glass ceramics, further elements, AAS-detection)
DIN 52341 1993-10	Testing of glass - Chemical analysis of lead crystal glass and crystal glass (Modification: Application on special glasses and glass ceramics, further elements: Li)
DIN 52342-7 1980-01	Testing of raw materials for the production of glass; Chemical analysis of arenaceous quartz with at least 98 % silica - Part 7: Determination of Na2O and K2O (Modification: Detection with FAAS)
01_SOP_00394 2025-08	Determination of alkaline and alkaline earth oxides in raw materials and materials by flame atomic absorption spectrometry (FAAS)

1.3.2 by Inductively Coupled Plasma (ICP-OES) [Flex B]

ISO 10058-3 2008-12	Chemical analysis of magnesite and dolomite refractory products (alternative to the X-ray fluorescence method) - Part 3: Flame atomic absorption spectrophotometry (FAAS) and inductively coupled plasma atomic emission spectrometry (ICP-AES)
ISO 11885 2007-08	Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (Modification: Application on digestion solutions)

DIN 51086-2 2004-07	Testing of oxidic raw materials and materials for ceramics, glass and glazes - Part 2: Determination of Ag, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Er, Eu, Fe, La, Mg, Mn, Mo, Nd, Ni, P, Pb, Pr, S, Sb, Se, Sn, Sr, Ti, V, W, Y, Yb, Zn, Zr by optical emission spectrometry with inductively coupled plasma (ICP-OES) (Modification: Determination of further elements: Gd, Ge, Hf, Nb, K, Na, Ta)
DIN 52342-7 1980-01	Testing of raw materials for the production of glass; Chemical analysis of arenaceous quartz with at least 98 % silica - Part 7: Determination of Na2O and K2O (Modification: Detection with ICP-OES)

1.3.3 by Inductively Coupled Plasma and mass-selective detection (ICP-MS) [Flex C]

ISO 17294-2 2023-10 (corrected version 2024-02 with formal adaptions)	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (Modification: Application on digestion solutions)
01_SOP_00478 2025-08	Semi-quantitatve trace analysis of glasses, glass ceramics, raw materials and materials, dusts after sample digestion as well as aqueous extracts by ICP-MS

1.3.4 UV/VIS-Spectrophotometry [Flex C]

ISO 14719 2011-12	Chemical analysis of refractory material glass and glazes - Determination of Fe2+ and Fe3+ by the spectral photometric method with 1,10-phenanthroline
DIN 51084 2008-11	Testing of oxidic raw and basic materials for ceramic, glass and glazes - Determination of fluoride content
DIN 51086-3 2007-04	Testing of oxidic raw and basic materials for ceramics, glass and glazes - Part 3: Spectrophotometric determination of chrome(VI) with diphenyl carbazide in the presence of chrome(III)
01_SOP_00481 2025-08	Spectrophotometric determination of halides and arsenic in glasses, glass ceramics, raw materials and refractory materials

01_SOP_00482 2025-08	Spectrophotometric determination of metal species in glasses, glass ceramics, raw materials and refractory materials

1.4 by Ion Chromatography (IC) [Flex B]

ISO 10304-1 2007-08	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (Modification: Determination, also of further anions: Acetate, Formate, in aqueous extracts and digestion solutions and Fluoride, Chloride after combustion in solid samples)

1.5 by solid state methods (XRF, Laser-ICP-MS, CA)

1.5.1 X-Ray Fluorescence-Analysis (XRF) [Flex C]

ISO 12677 2011-10	Chemical analysis of refractory products by X-ray fluorescence (XRF) - Fused cast-bead method
DIN 51001 2003-08	Testing of oxidic raw materials and basic materials - General bases of work for X-ray fluorescence method (XRF)
DIN 51001 Beiblatt 2010-05	Testing of oxidic raw materials and basic materials - General bases of work for X-Ray fluorescence method (XRF) - General survey on disintegration methods referred to groups of materials for the determination of test specimens for XRF
01_SOP_00483 2025-08	Semi-quantitative determination of the composition of unknown glasses, glass ceramics, raw materials and materials, dusts, pigments, metals and residues by WD-XRF as well as micro-area analysis with SSM-EDX module

1.5.2 Laser Ablation Inductively Coupled Plasma-Mass Spectrometry (LA-ICP-MS) [Flex C]

ASTM E 2927 2016-00	Standard Test Method for Determination of Trace Elements in Soda-Lime Glass Samples Using Laser Ablation Inductively Coupled Plasma Mass Spectrometry
01_SOP_00484 2025-08	Determination of trace components and ultratraces in glasses, glass ceramics and metals by Laser Ablation - Inductively Coupled Plasma Mass Spectroemtry (LA-ICP-MS)

1.5.3 Combustion Analysis (CA) [Flex C]

ISO 15350 2000-12	Steel and iron - Determination of total carbon and sulfur content - Infrared absorption method after combustion in an induction furnace (routine method)
DIN EN 17505 2024-04	Soil and waste characterization - Temperature dependent differentiation of total carbon (TOC400, ROC, TIC900) (Application here to inorganic oxide materials)
DIN 51085 2022-09	Testing of oxidic raw and basic materials – Determination of total sulphur content
01_SOP_00485 2025-08	Determination of water and carbon in glass, glass ceramics, raw materials and metals with gas analysis (CA)

2 Determination of the chemical resistance of glasses, glass ceramics, decorations on glasses or glass ceramics and other materials

2.1 Determination of resistance to liquid media

2.1.1 Ion release of surface

2.1.1.1 Sample preparation by extraction and leaching procedures [Flex C]

DIN EN 12457-2 2003-01	Characterization of waste – Leaching; Compliance test for leaching of granular and sludges - Part 2: One stage batch test at a liquid to solid ratio of 10 l/kg with particle size below 4 mm (without or with size reduction) (Modification: Application on glass)

01_SOP_00474 2025-08	Chemical durability and extractable components of glasses and glass ceramics and other materials (Extractables and Leachables): Procedures for stresses, extraction and leaching of glasses and glass ceramics

2.1.1.2 by Titrimetry [Flex B]

ISO 4802-1 2023-12	Glassware - Hydrolytic resistance of the interior surfaces of glass containers – Part 1: Determination by titration method and classification
ISO 719 2020-09	Glass - Hydrolytic resistance of glass grains at 98 °C - Method of test and classification
ISO 720 2020-09	Glass - Hydrolytic resistance of glass grains at 121 °C - Method of test and classification
YBB00242003-2015 2015-00	Tests and classification for hydrolytic resistance of Interior Surfaces at 121°C
YBB00252003-2015 2015-00	Tests and Classification for Hydrolytic Resistance of Glass Grains at 121°C
YBB00362004-2015 2015-00	Test and Classification for Hydrolytic Resistance of Glass Grains at 98°C

2.1.1.3 by Atomic Absorption Spectrometry (FAAS, HG-AAS, GFAAS) [Flex C]

ISO 4802-2 2023-12	Glassware - Hydrolytic resistance of the interior surfaces of glass containers – Part 2: Determination by flame spectrometry and classification

ISO 1776 1985-10	Glass - Resistance to attack by hydrochloric acid at 100 degrees C; Flame emission or flame atomic absorption spectrometric method
DIN 52296 1989-12	Glass and glass ceramics - Hydrolytic resistance of the surface of glass and glass ceramic plates at 98 °C - Method of test and classification
01_SOP_00473 2025-08	Determination of silicone in organic extracts with Atomic Absorption Spectrometry (AAS)

2.1.1.4 by Inductively Coupled Plasma (ICP-OES) [Flex C]

ISO 11885 2007-08	Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (Modification: Determination of further elements: Ce, Ge, La, Nb, Ta)
01_SOP_00028 2025-08	Trace element analysis of aqueous extracts from glass, glass ceramics and pharmaceutical packaging with ICP-MS or ICP-OES (here with ICP-OES)

2.1.1.5 by Inductively Coupled Plasma with mass-selective detection (ICP-MS) [Flex C]

ISO 17294-2 2023-10 (corrected version 2024-02 with formal adaptions)	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes
DIN 52296 1989-12	Glass and glass ceramics - Hydrolytic resistance of the surface of glass and glass ceramic plates at 98 °C - Method of test and classification (Modification: Determination of further cations with ICP-MS)
YBB00372004-2015 2015-00	Tests for release of arsenic antimony, lead and cadmium
01_SOP_00028 2025-08	Trace element analysis of aqueous extracts from glass, glass ceramics and pharmaceutical packaging with ICP-MS or ICP-OES (here with ICP-MS)

2.1.1.6 by electrode measurement [Flex B]

DIN 19268 2021-10	pH-measurement - pH-measurement of aqueous solutions with pH measuring chains with pH glass electrodes and evaluation of measurement uncertainty
DIN EN 27888 1993-11	Water quality - determination of electrical conductivity

2.1.1.7 by Ion Chromatography (IC) [Flex A]

ISO 10304-1 2007-08	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (Modification: Detection, also of further anions: Acetate, Formate, in aqueous solutions)

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3 Determination of the mass contents of elements in glasses, glass ceramics, ceramics and other anorganic materials, glass and ceramic raw materials

3.1 Sampe preparation, digestion methods (open digestions, melting digestion techniques) [Flex C]

01_SOP_00556 2025-09	Special digestion procedures for glasses, glass ceramics, ceramics, raw materials and other materials

3.2 by Optical Emission Spectroscopy with Inductively Coupled Plasma (ICP-OES) [Flex A]

DIN 51086-2 2004-07	Testing of oxidic raw materials and materials for ceramics, glass and glazes - Part 2: Determination of Ag, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Er, Eu, Fe, La, Mg, Mn, Mo, Nd, Ni, P, Pb, Pr, S, Sb, Se, Sn, Sr, Ti, V, W, Y, Yb, Zn, Zr by optical emission spectrometry with inductively coupled plasma (ICP-OES) -(Modifikation: Limited to quantitative analysis of B, Ba, Cr, Cu, Fe, Mg, Ni, Ti, Zr with further elements Al, K, Na)