Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14629-01-05 according to DIN EN ISO/IEC 17025:2018

Valid from: **02.04.2024**

Date of issue: 02.04.2024

This annex is a part of the accreditation certificate D-PL-14629-01-00.

Holder of partial accreditation certificate:

Eurofins GfA Lab Service GmbH
Neuländer Kamp 1a, 21079 Hamburg

with the location

Eurofins GfA Lab Service GmbH
Neuländer Gewerbepark 4, 21079 Hamburg

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

Tests in the fields:

Determination of highly toxic compounds in waste, biota, soil, sediment and sludge;
Analyses according to the legislative environmental modules soil and inherited waste as well as waste

This certificate annex is only valid together with the written accreditation certificate and 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.

Within the given testing field marked with */ the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, the following:**

***) the free choice of standard or equivalent testing methods.**

****) the modification, development and refinement of testing methods.**

The listed testing methods are exemplary.

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 the standards or equivalent testing methods listed here with different issue dates.**

The testing laboratory maintains a current list of all testing procedures within the flexible scope of accreditation.

Inhaltsverzeichnis

1 Sample preparation ***

DIN 19747 2009-07	Investigation of solids-pretreatment, preparation and processing of samples for chemical, biological and physical investigations

2 Determination of organic pollutants using isotope dilution analysis and gas chromatography with mass spectrometric detection (MS, MS/MS and HRMS) in waste, biota (environment markers), soil, sediment und sludge **

GLS DF 110 2023-11	Determination of polychlorinated dibenzodioxins (PCDD), polychlorinated dibenzofuranes (PCDF) and polychlorinated biphenyls (PCB) incl. all 209 PCB-congeners in food and feed as well as other samples by gas chromatography with mass spectrometric detection (Scope here: *biota*)
GLS DF 130 2022-11	Determination of polychlorinated dibenzodioxins (PCDD), polychlorinated dibenzofuranes (PCDF) and polychlorinated biphenyls (PCB) incl. all 209 PCB-congeners in environmental samples, water, materials and chemicals by gas chromatography with mass spectrometric detection
GLS OC 200 2023-02	Determination of polybrominated diphenyl ether (PBDE) and polybrominated biphenyles (PBB) in diverse sample matrices by gas chromatography with mass spectrometric detection (Scope here: *soil, sediment, sludge, waste, biota)*
GLS OC 230 2023-09	Determination of the mass concentration of short and middle chain C10-C17 Chlorparaffines (SCCP, MCCP) in diverse sample matrices by GC-MS (Scope here: *soil, sludge, waste*)
GLS OC 300 2023-09	Determination of polycyclic aromatic hydrocarbons (PAK) in diverse sample matrices by gas chromatography with mass spectrometric detection (Scope here: *sludge, soil, sediment*)
GLS OC 600 2023-09	Determination of organotin compounds (OTC) in diverse matrices by gas chromatography with mass spectrometric detection (Scope here: *soil, sediment, sludge, biota*)
GLS OC 720 2023-09	Determination of alkyl phenoles in diverse sample matrices by gas chromatography with mass spectrometric detection (Scope here: *soil, sludge, wastel*)

3 Determination of organic pollutants using isotope dilution analysis and high performance liquid chromatography with mass spectrometric detection (LC-MS/MS) in waste, biota (environment markers), soil and sludge **

GLS OC 260 2019-01	Determination of the mass concentration of hexabromocyclododecane (HBCD) in diverse sample matrices by LC-MS/MS (Scope here: *soil, waste, sludge and biota*)
GLS OC 400 2019-01	Determination of per- and polyfluorinated compounds (PFAS) in diverse sample matrices by LC-MS/MS (Scope here: *soil, waste and biota*)

4 Determination of moisture content, volatile compounds content, dry residue and fat content in waste, soil, sediment and sludge using gravimetry *

DIN EN ISO 16720 2007-06	Soil quality - Pretreatment of samples by freeze-drying for subsequent analysis (Modification: *Extension of the scope for sludges and sediments*)
DIN EN 12880 2001-02	Characterization of sludges - Determination of dry residue and water content (Modification: *Extension of the scope for soil, sediments and waste*)
DIN EN 14346 2007-03	Characterization of waste - Calculation of dry matter by determination of dry residue or water content

5 List of test methods for the soil and inherited waste module

Stadus: LABO, dated 16.08.2012

Examination area 1: Solids

Section 1.1 sampling and on-site examination

not used

Section 1.2 laboratory analysis of inorganic parameters

not used

Section 1.3 laboratory analysis of organic parameters

Analysis of organic parameters			
Examination parameters	**Methods / Notes**	**Method**	
Preparation and treatment of samples	Note: When chemically drying or air-drying the sample material, it must be taken into account that when using non-water-miscible solvents such as hexane/heptane in conjunction with a 1x extraction (widely used as a laboratory method), the residual moisture leads to lower results, particularly in the case of cohesive soil material samples. Soxhlet extractions or solvent mixtures with acetone for extraction are indispensable for samples dried in this way.	DIN 19747: 2009	☒
Dry matter	Fresh from the field or Air-dried soil samples	DIN ISO 11465: 1996	☐
		DIN EN 14346: 2007	☒
Organic carbon and total carbon after dry combustion (TOC)	Air-dried soil samples	DIN ISO 10694: 1996	☐
		DIN EN 13137: 2001	☐
		DIN EN 15936: 2012	☐
pH-Wert ($CaCl_2$)	Fresh from the field or Air-dried soil samples, c($CaCl_2$): 0,01 mol/l	DIN ISO 10390: 2005	☐
Raw density - **optional**	Drying of a soil sample taken by volume at 105 °C, weighing back.	DIN ISO 11272: 2001	☐
Grain size distribution - **optional**	1) Sieving, dispersin, Pipette analysis	DIN ISO 11277: 2002	☐
	2) Sieving, dispersion, Areoemeter method	DIN 18123: 2011 with LAGA PN 98	☐
Polycyclic aromatic hydrocarbons (PAK)	GC-MS	DIN ISO 18287: 2006	☐
	HPLC-UV/F* HPLC - UV/F Acenaphthylene cannot be determined by means of fluorescence detectors	DIN ISO 13877: 2000	☐
16 PAK (EPA) Naphthalin, Acenaphthylen, Acenaphthen, Fluoren, Phenanthren, Anthracen, Fluoranthen, Pyren, Chrysen, Benzo[a]anthracen, Benzo[b]- / Benzo[k]fluoranthen, Benzo[a]pyren, Indeno[1,2,3-cd]-pyren, Dibenzo[a,h]anthracen, Benzo[g,h,i]perylen	Note on the type of totaling must be added to the result.	DIN 38414-23: 2002	☐

Analysis of organic parameters			
Examination parameters	**Methods / Notes**	**Method**	
Hexachlorobenzene	GC - ECD, GC - MS	DIN ISO 10382: 2003	☐
Pentachlorophenol	GC - ECD, GC - MS	DIN ISO 14154: 2005	☐
Aldrin, DDT, HCH-mixture	GC - ECD, GC - MS	DIN ISO 10382: 2003	☐
		DIN EN 15308: 2008	☐
Polychlorinated biphenyls (PCB) (PCB6/ PCB7): PCB6-Kongenere 28, 52, 101, 138, 153, 180, sowie 118	GC - ECD, GC - MS	DIN ISO 10382: 2003* (* this standard takes into account the congener PCB 118)	☐
	Extraction with Aceton/Petrolether orr Soxhlet-Extraktion	DIN EN 15308: 2008* (* this standard takes into account the congener PCB 118)	☐
	The method for sum calculation must be stated (PCB6/PCB7)	DIN 38414-20: 1996 (This standard is also suitable for the determination of the congener PCB 118 - corresponding SOP must be available)	☒
Compounds typical for explosives (HPLC) (2,4-Dinitrotoluol, 2,6-Dinitrotoluol Hexanitrodiphenylamin, Hexogen, Nitropenta (PETN), 2,4,6-Trinitrotoluol) **- optional -**	Extraction using methanol or acetonitrile and quantification by means of HPLC-UV/DAD	E DIN ISO 11916-1: 2011 (ISO/FDIS 11916-1: 2011)	☐
Compounds typical for explosives (GC) (2,4-Dinitrotoluol, 2,6-Dinitrotoluol 2,4,6-Trinitrotoluol) **- optional -**	Extraction using methanol or acetonitrile and quantification by means of HPLC-UV/DAD	E DIN ISO 11916-2: 2011 (ISO/FDIS 11916-2: 2011)	☐
Mineral oil hydrocarbons (MKW, C_{10}-C_{40}) **- optional -**	GC-FID	DIN ISO 16703: 2005	☐
		LAGA KW/04: 2009	☐

Analysis of organic parameters			
Examination parameters	**Methods / Notes**	**Method**	
BTEX aromatic compounds, LHKW (LHKW) Single parameters according to the standard**- optional -**	Headspace, GC	DIN ISO 22155: 2006	☐

Examination area 1.4: Labor – Analysis PCDD, PCDF and dioxin-lie PCB

Analysis - PCDD, PCDF and dioxin-lide PCB			
Examination parameters	**Methods / Notes**	**Method**	
Preparation and treatment of samples		DIN 19747: 2009	☒
Dry matter	Fresh from the field or Air-dried soil samples	DIN ISO 11465: 1996	☐
		DIN EN 14346: 2007	☒
Organic carbon and total carbon after dry combustion (TOC)	Air-dried soil samples	DIN ISO 10694: 1996	☐
		DIN EN 13137: 2001	☐
		DIN EN 15936: 2012	☐
pH-Wert ($CaCl_2$)	Fresh from the field or Air-dried soil samples, c($CaCl_2$): 0,01 mol/l	DIN ISO 10390: 2005	☐
Raw density - **optional**	Drying of a soil sample taken by volume at 105 °C, weighing back.	DIN ISO 11272: 2001	☐
Grain size distribution - **optional**	1) Sieving, dispersion, Pipette analysis	DIN ISO 11277: 2002	☐
	2) Sieving, dispersion, Areometer method	DIN 18123: 2011 with LAGA PN 98	☐
PCDD / PCDF, dl-PCB *	GC-MS, assessment according to internal standard method using the respective standard of a congener respectively marked 13C12.	DIN 38414-24: 2000	☒

Examination area 2: Eluates and percolates, aqueous media

Section 2.1 sampling and on-site examination

not used

Section 2.2 laboratory analysis of eluates/percolates for inorganic parameters

not used

Section 2.3 laboratory analysis of eluates/percolates for organic parameters

Eluate/Perkolate			
Examination parameters	**Methods / Notes**	**Method**	
Shaking method - elution of inorganic substances	Water/solids ratio of 2 L/kg	DIN 19529: 2009	☐
Shaking method - elution of organic substances	Water/solids ratio of 2 L/kg	DIN 19527: 2012	☐
Shaking method - elution of inorganic substances – **optional**	Water/solids ratio of 10 L/kg	DIN EN 12457-4: 2003	☐
Percolation method for organic and inorganic substances – **optional**		DIN 19528: 2009	☐
Examination for resorption availability - **optional**		DIN 19738: 2004	☐

Analysis of organic parameters			
Examination parameters	**Methods / Notes**	**Method**	
Aromatic compounds (BTEX): Benzol, Toluol, Ethylbenzol, Xylole, Styrol	Purge + Trap/Desorption, GC-MS	DIN EN ISO 15680: 2004	☐
	Liquid extraction or Headspace, GC	DIN 38407-9: 1991	☐
	Headspace-SPME, GC-MS	DIN 38407-41: 2011	☐
Highly volatile halogenated hydrocarbons (LHKW) Single parameters according to the standard	Purge + Trap/Desorption, GC-MS	DIN EN ISO 15680: 2004	☐
	Liquid extraction or Headspace, GC	DIN EN ISO 10301: 1997	☐
	Headspace-SPME, GC-MS	DIN 38407-41: 2011	☐
Aldrin	GC-ECD, GC-MS	DIN EN ISO 6468: 1997	☐
		DIN 38407-2: 1993	☐
Dichlordiphenyltrichlorethane (DDT)	GC-ECD, GC-MS	DIN EN ISO 6468: 1997	☐
		DIN 38407-2: 1993	☐
Chlorphenols	GC-ECD, GC-MS	DIN EN 12673: 1999	☐
Chlorobenzenes (Cl3-Cl6)	GC-ECD, GC-MS	DIN 38407-2: 1993	☐
	Liquid extraction, GC-ECD, GC-MS	DIN EN ISO 6468: 1997	☐
Chlorobenzenes (Cl1-Cl3)	Liquid extraction or Headspace, GC-ECD (ggf. MS)	DIN EN ISO 10301: 1997	☐
Polychlorierte Biphenyle (PCB6 / PCB7): PCB6-congenere 28, 52, 101, 138, 153, 180, sowie 118	GC-ECD, GC-MS Method of sum calculation (PCB6/PCB7) must be specified	DIN 38407-2: 1993	☒
		DIN 38407-3: 1998	☒

Analysis of organic parameters			
Examination parameters	**Methods / Notes**	**Method**	
16 PAK (EPA) (at HPLC without Acenaphthylen)	GC-MS	DIN 38407-39: 2011	☐
	HPLC - F	DIN EN ISO 17993: 2004	☐
Naphthaline	GC-FID, GC-MS	DIN EN ISO 15680: 2004	☐
		DIN 38407-9: 1991	☐
Mineral oil hydrocarbons (MKW, C_{10}-C_{40})	GC-FID	DIN EN ISO 9377-2: 2001	☐
Compounds typical for explosives (HPLC) **- optional -**	Determination of selected explosives and related compounds – with HPLC / UV-Detection	DIN EN ISO 22478: 2006	☐
Compounds typical for explosives (GC) **- optional -**	Determination of selected nitroaromatic compounds by GC	DIN 38407-17: 1999	☐
Phenols **- optional -**	GC-ECD, GC-MS	ISO 8165-2: 1999	☐
		DIN EN 12673: 1999	☐

Examination area 3: Soil air, landfill gas

not used

6 List of test methods for the waste module

Status: LAGA, dated May 2018

Examination area 1: Sewage sludge

	Sections / Parameters	**Basis /** Methods	
		AbfKlärV	
1.1	**Sampling and sample preparation**	**§ 32 Abs. 3 und 4 AbfKlärV**	
a)	**Sampling**	**DIN EN ISO 5667-13 (08.11) und DIN 19698-1 (05.14)**	☐
b)	**sample preparation**	**DIN 19747 (07.09)**	☒

Section 1.2 Heavy metals and chromium VI

not used

Section 1.3 Adsorbed organic bound halogens

not used

1.4	**Physikalische Parameter, Nährstoffe**	**§ 5 Abs. 1 Nrn. 3 - 9 AbfKlärV**	
	Dry residue	**DIN EN 15934 (11.12)**	☐
		DIN EN 12880 (02.01)	☒
	Organic substance as loss on ignition (from dry residue)	**DIN EN 15935 (11.12)**	☐
		DIN EN 12879 (02.01)	☐
	pH value	**DIN EN 15933 (11.12)**	☐
		DIN 38414-5 (07.09)	☐
	Alkaline agents as CaO	**VDLUFA handbook Volumen II.2, Method 4.5.1**	☐
	Ammonium nitrogen (NH_4-N)	**DIN 38406-5 (10.83)**	☐
	Total nitrogen (N_{total})	**DIN EN 13342 (01.01)**	☐
		DIN EN 16169 (11.12)	☐
		DIN ISO 11261 (05.97)	☐
	Aqua regia digestion	**DIN EN 16174 (11.12)**	☐
		DIN EN 13346 Method A (04.01)	☐
	Phosphorus (P) (from aqua regia digestion) (conversion: Phosphorus (P) = 2,291 for phosphorus pentoxide (P_2O_5))	**DIN EN ISO 11885 (09.09)**	☐
		DIN EN ISO 6878 (09.04)	☐
		DIN EN ISO 17294-2 (01.17)	☐
		DIN EN 16171 (01.17)	☐
		DIN EN 16170 (01.17)	☐

	Persistent organic pollutants	**§ 5 Abs. 2 Nrn. 1 – 4 AbfKlärV**	
1.5	**Polychlorinated biphenyls (PCB)**	**DIN 38414-20 (01.96)**	☒
		DIN EN 16167 (11.12)	☐

1.6	**Polychlorinated dibenzodioxins and furans (PCDD/PCDF) and dioxin-like polychlorinated biphenyls (dl-PCB)**	**DIN CEN/TS 16190; DIN SPEC 91267 (05.12)**	☒
		DIN 38414-24 (10.00)	☒

1.7	**Benzo(a)pyrene (B(a)P)**	**DIN EN 15527 (09.08)**	☐
		DIN 38414-23 (02.02)	☐
		DIN CEN/TS 16181; DIN SPEC 91243 (12.13)	☒

1.8	**Polyfluorinated compounds (PFC) with the individual substances perfluorooctanoic acid and perfluorooctanesulphonic acid (PFOA/PFOS)**	**DIN 38414-14 (08.11)**	☒

Examination area 2: Waste

not used

Examination area 3: organic waste

not used

Examination area 4: Waste oil, insulating liquid

Section 4.1 Sampling

not used

	Sections/ Parameters	**Basis/ Method**	
4.2	**PCB, halogen (only in accordance with)**	**Annex 2 Nrn. 2, 3**	
	PCB	**DIN EN 12766- 1 (11.00) in conjunction with DIN EN 12766- 2 (12.01), Method B**	☒
	Total halogen (for AltölV only)	**Annex 2, Nr. 3 AltölV**	☐

Examination area 5: Landfill waste

not used

Examination area 6: Wood waste

	Sections/ Parameters	Basis/ Method	
		AltholzV	
6.1	**Sampling and sample preparation**	**§ 6 Abs. 6 AltholzV**	
a)	**Sampling**	LAGA PN in conjunction with **Annex IV Nr. 1.1 AltholzV**	☐
b)	**Sample preparation**	DIN 19747 (07.09) in conjunction with **Annex IV Nr. 1.3**	☒
	Preparation of laboratory sample	DIN 19747 (07.09) in conjunction with **DIN 51701- 3 (08.85)**	☐
	Moisture content	**DIN 52183 (11.77)**	☐

Section 6.2 Heavy metals

not used

Section 6.3 Halogens

not used

6.4	**Organic parameters**	**Annex IV Nr. 1.4.4 und 1.4.5 AltholzV**	
	Pentachlorophenol (PCP)	**Annex IV AltholzV, Nr. 1.4.4**	☐
		DIN ISO 14154 (12.05)	☐
	Polychlorinated biphenyls (PCB)	**Annex IV AltholzV, Nr. 1.4.5 in conjunction with DIN 38414- 20 (01.96)**	☒

Abbreviations used:

CEN	Comité Européen de Normalisation
DIN	Deutsches Institut für Normung e. V.
EN	European Standard
GLS DF XXX	in-house-method of Eurofins GfA Lab Service GmbH from PCDD/F-Analytics
GLS OC XXX	in-house-method of Eurofins GfA Lab Service GmbH from Organic Chemistry
IEC	International Electrotechnical Commission – Internationale Elektrotechnische Kommission
ISO	International Organization for Standardization – Internationale Organisation für Normung
TS	Technical Specification