Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-14289-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **15.01.2021**

Date of issue: 15.01.2021

Holder of certificate:

AGROLAB Labor GmbH

at the locations

Dr.-Pauling-Straße 3, 84079 Bruckberg
Moosstraße 6a, 82279 Eching am Ammersee
Friedrichstraße 8, 70736 Fellbach

Tests in the fields:

Sampling of raw and drinking water, waste water, landfill leachate, swimming pool and bathing pool water, water from recooling systems and ventilation and air-conditioning systems, from barrages and lakes, from aquifers and running waters;
Physical, physico-chemical, chemical, microbiological and molecular biological analysis of water (waste water, groundwater, surface water, irrigation water, raw water, landfill leachate, fresh water, swimming pool and bathing pool water, bathing water, process water, water from recooling systems and ventilation and air-conditioning systems, mineral and spa waters, water from piped and non-piped drinking water dispensers, water from dental units, heating water, drinking water, from industrial water) and from aqueous eluates;
Analysis in accordance with the German Drinking Water Ordinance with the exception of radioactive substances; sampling and microbiological analysis of industrial water in accordance with 42nd BImSchV Section 3 (8);

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 may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH https://www.dakks.de/en/content/accredited-bodies-dakks.

Sampling of soils, contaminated sites, waste and materials for recovery and disposal, recycled materials, substitute building materials, sediments, sewage sludge and sludge, compost and digestates, wood waste, ash, slag and building material samples;
Physical, physico-chemical, chemical, microbiological and molecular biological analysis of soils, contaminated sites, waste and substances for recovery and disposal, recycling materials, substitute building materials, sediments, sewage sludge and sludge, composts and digestates, wood waste, ash, slag and building material samples, of foodstuffs, food additives, food supplements, samples from primary production of food, feedstuffs, drinking water and cosmetics, of surfaces, indoor air samples and commodities, and of chemical products;
Determination of organic compounds in soil gas;
Analysis of material and waste samples, and of dusts and air (indoor air pollutants) for asbestos and artificial mineral fibres (AMF);
Specialist modules for water, soil, contaminated sites and waste

The identifiers after the testing and sampling methods indicate the location for which competence is confirmed:

Location	**Abbreviation**
Bruckberg main office	Br
Eching am Ammersee branch office	E
Stuttgart branch office (Fellbach)	St

In sections 1 to 8, 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.

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.

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

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1 Analysis of water (waste water, groundwater, surface water, irrigation water, raw water, landfill leachate, fresh water, swimming pool and bathing pool water, bathing water, process water, water from recooling systems and ventilation and air-conditioning systems, mineral and spa waters, water from piped and non-piped drinking water dispensers, water from dental units, heating water, drinking water, from industrial water) and aqueous eluates at the Bruckberg location

1.1 Sampling

DIN EN ISO 5667-1 (A 4) 2007-04	Water quality - Sampling - Part 1: Guidance on the design of sampling programmes and sampling techniques	Br, E, St
DIN 38402-A 11 2009-02	Sampling of waste water *(Application also for landfill leachate*)	Br, St
ISO 5667-10 1992-11	Water quality - Sampling - Part 10: Guidance on sampling of waste waters *(Application also for landfill leachate*)	Br, St
DIN 38402-A 13 1985-12	Sampling from aquifers	Br, E, St
ISO 5667-11 2009-04	Water quality - Sampling - Part 11: Guidance on sampling of groundwaters (With due regard to Information Sheet DVGW W112 (A), 2011-10, Principles of groundwater sampling from groundwater monitoring wells and Information Sheet DWA-A 909, 2011-12, Principles of groundwater sampling from groundwater monitoring wells)	Br, E, St
DIN 38402-A 13 Draft 2016-09	Sampling from aquifers	Br, E, St
DIN ISO 5667-5 (A 14) 2011-02	Water quality - Sampling - Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems	Br, E, St
DIN EN ISO 5667-6 (A 15) 2016-12	Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams	Br, E, St
DIN 38402-A 18 1991-05	Sampling of water from mineral springs and spas	Br, E, St

DIN 38402-A 19 1988-04	Sampling of swimming pool and bathing pool water	Br, E, St
DIN 19643-1 2012-11	Treatment of swimming pool and bathing pool water - Part 1: General requirements (Here: *section 14.2 sampling only*)	E, St
DIN EN ISO 5667-3 (A 21) 2013-03	Water quality - Sampling - Part 3: Preservation and handling of water samples	Br, E, St
DIN EN ISO 5667-3 Draft Standard 2018-04	Water quality - Sampling - Part 3: Preservation and handling of water samples	Br, E, St
DIN EN ISO 5667-14 (A 25) 2016-12	Water quality - Sampling - Part 14: Guidance on quality assurance and quality control of environmental water sampling and handling	Br, E, St
DIN EN ISO 19458 (K 19) 2006-12	Water quality - Sampling for microbiological analysis (Here: *Also for recooling water, industrial water*)	E, St
UBA Announcement BGBl. 57:258-279 2014	Hygiene requirements for baths and their monitoring for sampling	E, St
DIN 38402-A 30 1998-07	Pretreatment, homogenisation and aliquotation of non-homogeneous water samples	Br, E, St
VDI 2047 Sheet 2 2019-01	Open recooler systems - Securing hygienically sound operation of evaporative cooling systems (VDI Cooling Tower Code of Practice) (Here: *implementation of sampling*)	E, St
LAWA Groundwater Guideline Part 3 1993-03	Groundwater; Guidelines for monitoring and analysis; Part 3 - Groundwater quality	Br, E, St
DVGW twin 10 2015-03	Guidance for sampling from water meters for the purpose of microbiological analysis for *Pseudomonas* aeruginosa	E, St
DVGW Work Sheet W551 2004-04	Drinking water heating and drinking water piping systems - Technical measures to reduce Legionella growth - Design, construction, operation and rehabilitation of drinking water installations	E, St

UBA Recommendation 2018-12	Systemic analysis of drinking water installations for legionella in accordance with the German Drinking Water Ordinance - Sampling, examination and indication of the result (Here: *sampling*)	E, St
UBA Recommendation 2018-12	Assessment of the quality of drinking water with respect to the parameters lead, copper and nickel ("sampling recommendation")	E, St

1.2 Sampling and sample preparation

DIN EN ISO 15587-1 (A 31) 2002-07	Water quality - Digestion for the determination of selected elements in water - Part 1: Aqua regia digestion	Br
DIN EN ISO 15587-2 (A 32) 2002-07	Water quality - Digestion for the determination of selected elements in water - Part 2: Nitric acid digestion	Br, E

1.3 Sensory analysis

DEV B 1/2 1971	Test for odour and flavour	Br, E, St
DIN EN 1622 (B 3) 2006-10	Water quality - Determination of the threshold odour number (TON) and threshold flavour number (TFN) (St location: *restriction to Annex C*)	Br, E, St
MP-01912-DE 2019-06	Determination of apparent colouration and turbidity in water by organoleptic testing	Br

1.4 Determination of physical and physico-chemical indicators, sum parameters and gaseous components

DIN 4030-2 2008-06	Assessment of water, soil and gases for their aggressiveness to concrete - Part 2: Sampling and analysis of water and soil samples (Here: *analytics*)	Br, E
DEV H 12	Calculation of total nitrogen	Br

1.4.1 By gravimetry

DIN EN 872 (H 33) 2005-04	Water quality - Determination of suspended solids - Method by filtration through glass fibre filters	Br, E
DIN EN 14702-1 (S 10) 2006-06	Characterisation of sludges - Settling properties - Part 1: Determination of settleability (determination of the proportion of sludge volume and sludge volume index)	Br
DIN 38409-H 1 1987-01	Determination of total dry residue, filtrate dry residue and residue on ignition	Br, E
DIN 38409-H 2 1987-03	Determination of filterable matter and the residue on ignition	Br, E
DIN 38409-H 19 1986-02	Determination of directly separable lipophilic substances	Br
DIN ISO 11349 (H 56) 2015-12	Water quality - Determination of low-volatility lipophilic substances - Gravimetric method	Br
DIN 38409-56 2009-06	Gravimetric determination of low volatile lipophilic substances after solvent extraction	Br

1.4.2 By photometry

DIN EN ISO 7887 (C 1) 2012-04	Water quality - Examination and determination of colour	Br, E, St
DIN EN ISO 7027-1 (C 21) 2016-11	Water quality - Determination of turbidity - Part 1: Quantitative method	Br, E, St
DIN 38404-C 3 2005-07	Determination of absorption in the range of UV radiation, spectral absorption coefficient	Br, E, St
DIN 38406-E 1 1983-05	Determination of iron	Br
DIN EN ISO 14402 (H 37) 1999-12	Water quality - Determination of phenol index by flow analysis (FIA and CFA)	Br
DIN EN ISO 7393-2 (G 4-2) 2019-03	Water quality - Determination of free chlorine and total chlorine - Part 2: Colorimetric method using N,N- dialkyl -1,4-phenylenediamine, for routine control purposes	Br, E, St

DIN EN 26777 (D 10) 1993-04	Water quality; determination of nitrite; spectrometric method	St

1.4.3 By titrimetry

DIN 38404-C 10 2012-12	Calculation of the calcite saturation of water	Br
DIN EN ISO 9963-1 (C 23) 1996-02	Water quality - Determination of alkalinity - Part 1: Determination of total and composite alkalinity	Br
DEV G 1 1971	Determination of the sum of dissolved carbon dioxide	Br
DIN EN 25813 (G 21) 1993-01	Water quality - Determination of dissolved oxygen - Iodometric method	Br, E
DIN EN ISO 8467 (H 5) 1995-05	Water quality - Determination of permanganate index	Br, E, St
DIN 38409-H 6 1986-01	Water hardness	Br, E
DIN 38409-H 7 2005-12	Determination of acid and base-neutralising capacities	Br, E, St
DIN 38409-H 8 1984-09	Determination of extractable organically bonded halogens (EOX)	Br
DIN EN 25663 (H 11) 1993-11	Water quality - Determination of Kjeldahl nitrogen - Method after digestion with selenium	Br
DIN EN ISO 9562 (H 14) 2005-02	Water quality - Determination of adsorbable organically bound halogens (AOX)	Br
DIN 38409-H 41 1980-12	Determination of chemical oxygen demand (COD) in the range over 15 mg/l	Br
DIN 38409-H 44 1992-05	Determination of the chemical oxygen demand (COD), ranging from 5 to 50 mg/l	Br
DIN EN ISO 9888 (L 25) 1999-11	Water quality - Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium - Static test (Zahn-Wellens method) (Here: *CSB analytics*)	Br

1.4.4 By potentiometry

DIN 38404-C 4 1976-12	Determination of temperature	Br, E, St
DIN EN ISO 10523 (C 5) 2012-04	Water quality - Determination of pH	Br, E, St
DIN 38404-C 5 2009-07	Determination of pH	Br
DIN 38404-C 6 1984-05	Determination of the oxidation reduction (redox) potential	Br
DIN EN 27888 (C 8) 1993-11	Water quality; Determination of electrical conductivity	Br, E, St

1.4.5 By combustion analysis

DIN EN 1484 (H 3) 2019-04	Water analysis - Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)	Br, E
DIN 38409-H 27 1992-07	Determination of total bound nitrogen TN_b	Br
DIN EN 12260 (H 34) 2003-12	Water quality - Determination of nitrogen - Determination of bound nitrogen (TNb), following oxidation to nitrogen oxides	Br, E
DIN EN ISO 9888 (L 25) 1999-11	Water quality - Evaluation of ultimate aerobic biodegradability of organic compounds in aqueous medium - Static test (Zahn-Wellens method) (Here: *DOC analytics*)	Br

1.4.6 By electrode measurement

DIN EN ISO 5815-1 Draft Standard 2018-01	Water quality - Determination of biochemical oxygen demand after n days (BOD_n) - Part 1: Dilution and seeding method with allylthiourea acid addition	Br
DIN EN 1899-1 (H 51) 1998-05	Water quality - Determination of biochemical oxygen demand after *n* days (BOD_n) - Part 1: Dilution and seeding method with allylthiourea acid addition	Br

DIN EN 1899-2 (H 52) 1998-05	Water quality - Determination of biochemical oxygen demand after *n* days (BOD_n) - Part 2: Methods for undiluted samples	Br
DIN EN ISO 5814 (G 22) 2013-02	Water quality - Determination of dissolved oxygen - Electrochemical probe method	Br, E
DIN EN 25814 1992-11	Water quality - Determination of dissolved oxygen - electrochemical probe method	Br
DIN V 38408-G 24 Prestandard 1987-08	Determination of the spontaneous oxygen depletion	Br

1.4.7 By volumetry

DIN 38409-H 9 1980-07	Determination of the settleable matter by volume in water and waste water	Br, E

1.5 Determination of anions and cations

1.5.1 By photometry

DIN 38405-D 4 1985-07	Determination of fluoride	Br
DIN EN ISO 6878 (D 11) 2004-09	Water quality - Determination of phosphorus - Ammonium molybdate photometric method	Br, E
DIN 38405-D 24 1987-05	Photometric determination of chromium(VI) using 1,5-diphenylcarbonohydrazide	Br
DIN 38405-D 27 2017-10	Determination of sulphide by gas extraction	Br, E
DIN ISO 15923-1 (D 49) 2014-07	Water quality - Determination of selected parameters by discrete analysis systems - Part 1: Ammonium, nitrate, nitrite, chloride, orthophosphate, sulphate and silicate with photometric detection (Expansion: *iron II, chromium VI*)	Br, E
DIN 38406-E 2 1983-05	Determination of manganese (Here: *determination of manganese II*)	Br

MP-00404-DE 2019-02	Determination of urea in water by enzymatic cleavage and subsequent detection by spectrometric detection of ammonium in the single analysis system	E

1.5.2 By photometry with flow and flow rate analysis (FIA, CFA)

DIN EN ISO 14403 2002-07	Water quality - Determination of total cyanide and free cyanide by continuous flow analysis	Br
DIN EN ISO 14403-2 (D 3) 2012-10	Water quality - Determination of total cyanide and free cyanide using flow analysis (FIA and CFA) - Part 2: Method using continuous flow analysis (CFA)	Br, E
DIN EN ISO 15681-2 (D 46) 2005-05	Water quality - Determination of orthophosphate and total phosphorus contents by flow analysis (FIA and CFA) - Part 2: Method using continuous flow analysis (CFA)	E
DIN EN ISO 11732 (E 23) 2005-05	Water quality - Determination of ammonium nitrogen - Method by flow analysis (CFA and FIA) and spectrometric detection	Br
DIN EN ISO 14402 (H 37) 1999-12	Water quality - Determination of phenol index by flow analysis (FIA and CFA)	Br

1.5.3 By ion chromatography (IC)

DIN EN ISO 10304-1 (D 20) 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 (Here additionally in Br: *acetate and formate*)	Br, E
DIN EN ISO 10304-3 (D 22) 1997-11	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 3: Determination of chromate, iodide, sulphite, thiocyanate and thiosulphate (Modification: *restriction to chromate and sulphite*)	Br
DIN EN ISO 10304-4 (D 25) 1999-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 4: Determination of chlorate, chloride and chlorite in water with low contamination	E
DIN EN ISO 15061 (D 34) 2001-12	Water quality - Determination of dissolved bromate - Method by liquid chromatography of ions	E

1.6 Determination of elements

1.6.1 By inductively coupled plasma atomic emission spectrometry (ICP-OES)

DIN EN ISO 11885 (E 22) 2009-09	Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)	Br

1.6.2 By inductively coupled plasma mass spectrometry (ICP-MS)

DIN EN ISO 17294-2 (E 29) 2017-01	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes	Br, E
DIN 38406-E 29 1999-05	Determination of 61 elements by inductively coupled plasma mass spectrometry (ICP-MS)	Br

1.6.3 By atomic absorption spectrometry (AAS), Br *)

DIN EN ISO 12846 (E 12) 2012-08	Water quality - Determination of mercury - Method using atomic absorption spectrometry (AAS) with and without enrichment	Br, E
DIN ISO 16772 2005-06	Soil quality - Determination of mercury in aqua regia soil extracts with cold-vapour atomic spectrometry or cold-vapour atomic fluorescence spectrometry (Here: *Application to eluates*)	Br
DIN EN 1483 2007-07	Water quality - Determination of mercury - Method using atomic absorption spectrometry	Br

1.6.4 By atomic fluorescence spectrometry (AFS) *)

DIN EN ISO 17852 (E 35) 2008-04	Water quality - Determination of mercury - Method using atomic fluorescence spectrometry	Br
DIN ISO 16772 2005-06	Soil quality - Determination of mercury in aqua regia soil extracts with cold-vapour atomic spectrometry or cold-vapour atomic fluorescence spectrometry (Here: *Application to eluates*)	Br

1.7 Determination of organic compounds

1.7.1 By gas chromatography with conventional detectors (UV, FID, DAD detector)

DIN EN ISO 9377-2 (H 53) 2001-07	Water quality - Determination of hydrocarbon oil index - Part 2: Method using solvent extraction and gas chromatography	Br

1.7.2 By gas chromatography with mass selective detectors (GC-MS, GC-MS/MS) **)

DIN EN ISO 6468 (F 1) 1997-02	Water quality - Determination of certain organochlorine insecticides, polychlorinated biphenyls and chlorobenzenes - Gas chromatographic method after liquid-liquid extraction (Modification: *measurement using GC-MS*)	Br, E
DIN 38407-F 2 1993-02	Determination of low volatile halogenated hydrocarbons by gas chromatography (Modification: *measurement using GC-MS*)	Br
DIN 38407-F 3 1998-07	Gas chromatographic determination of polychlorinated biphenyls	Br, E
DIN EN ISO 10301 (F 4) 1997-08	Water quality - Determination of highly volatile halogenated hydrocarbons - Gas-chromatographic methods	Br
DIN EN ISO 10695 (F 6) 2000-11	Water quality - Determination of selected organic nitrogen and phosphorus compounds - Gas chromatographic method (Modification: *measurement using GC/MS*)	Br, E
DIN 38407-F 9 1991-05	Determination of benzene and some of its derivatives by gas chromatography	Br
DIN EN ISO 17353 (F 13) 2005-11	Water quality - Determination of selected organotin compounds - Gas chromatographic method	Br
DIN EN 12673 (F 15) 1999-05	Water quality - Gas chromatographic determination of some selected chlorophenols in water	Br, E
DIN 38407-F 17 1999-02	Determination of selected nitroaromatic compounds by gas-liquid chromatography	Br
DIN 38407-F 27 2012-10	Determination of selected phenols in groundwater and seepage water, aqueous eluates and percolates	Br

DIN EN ISO 22032 (F 28) 2009-07	Water quality - Determination of selected polybrominated diphenyl ethers in sediment and sewage sludge - Method using extraction and gas chromatography/mass spectrometry	Br
DIN 38407-F 30 2007-12	Determination of trihalogenmethanes in bathing water and pool water with headspace-gas chromatography	E
DIN EN ISO 18857-2 (F 32) 2012-01	Water quality - Determination of selected alkylphenols - Part 2: Gas chromatographic-mass spectrometric determination of alkylphenols, their ethoxylates and bisphenol A in non-filtered samples following solid phase extraction and derivatisation	Br
DIN 38407-F 37 2013-11	Determination of organochlorine pesticides, polychlorinated biphenyls and chlorobenzene in water - Method using gas chromatography and mass spectrometric detection (GC-MS) after liquid-liquid extraction	Br, E
DIN 38407-F 39 2011-09	Determination of selected polycyclic aromatic hydrocarbons (PAHs) - Method using gas chromatography with mass spectrometric detection (GC-MS)	E
DIN 38407-F 43 2014-10	Determination of selected easily volatile organic compounds in water - Method using gas chromatography and mass spectrometry by static headspace technique (HS-GC-MS)	Br, E
DIN 38407-F 44 2018-02	Determination of selected heterocyclic aromatic hydrocarbons (NSO heterocycles) in water - Method using gas chromatography and mass spectrometry (GC/MS) after solid-phase extraction (SPE)	Br
DIN 38413-2 1988-05	Determination of vinyl chloride (chloroethene) by headspace gas chromatography (Modification: *Determination by GC-MS*)	Br
EPA 8061A 1996-12	Phthalate esters by gas chromatography with electron capture detection (GC/ECD) (Modification: *extraction with acetonitrile after salt addition, measurement using GC/MS*)	Br
EPA 8270E 2018-06	Semivolatile organic compounds by gas chromatography/mass spectrometry (GC/MS)	Br

MP-01974-DE 2018-01	GC-MS screening; Qualitative orientation analysis of SVOCs in waters, soils and soil eluates, and in waste and waste eluates by GC/MS after liquid-liquid extraction	Br
MP-02002-DE 2018-02	GC-MS screening; Qualitative orientation analysis of VOCs in waters, solids and gases by HS-GC/MS	Br
MP-00406-DE 2019-02	GC-MS screening; Semi-quantitative orientation analysis of low volatility compounds in waters by GC/MS after liquid-liquid extraction	E
MP-00423-DE 2019-02	GC-MS screening; Semi-quantitative orientation analysis of volatile compounds in waters using GC/MS after headspace extraction	E

1.7.3 By liquid chromatography with conventional detectors (UV, FID, DAD detector)

ISO 21458 2008-12	Water quality - Determination of glyphosate and AMPA - Method using high performance liquid chromatography (HPLC) and fluorometric detection	Br
DIN EN ISO 22478 (F 21) 2006-07	Water quality - Determination of selected explosives and related compounds - Method using high performance liquid chromatography (HPLC) with UV detection	Br
DIN 38407-F 22 2001-10	Determination of glyphosate and aminomethyl phosphic acid (AMPA) by high performance liquid chromatography (HPLC), post-column derivatisation and fluorescence detection (Modification: *measurement using HPLC with fluorescence detection without post-column derivatisation)*	Br

1.7.4 By gas chromatography with mass selective detectors (LC-MS, LC-MS/MS) **)

ISO 25101 2009-03	Water quality - Determination of perfluorooctanesulfonate (PFOS) and perfluorooctanoate (PFOA) - Method for unfiltered samples using solid phase extraction and liquid chromatography/mass spectrometry	Br
DIN CEN/TS 16189 DIN SPEC 91263 2012-05	Sludge, treated biowaste and soil - Determination of linear alkylbenzene sulfonates (LAS) by high-performance liquid chromatography (HPLC) with fluorescence detection (FLD) or mass selective detection (MS)	Br

DIN EN ISO 11369 (F 12) 1997-11	Water quality - Determination of selected plant treatment agents - Method using high performance liquid chromatography with UV detection after solid-liquid extraction (Modification: *measurement using LC-MS/MS*)	Br, E
DIN ISO 16308 (F 45) 2017-09	Water quality - Determination of glyphosate and AMPA - Method using high performance liquid chromatography (HPLC) with tandem mass spectrometric detection	E
DIN 38407-F 35 2010-10	Determination of selected phenoxyalkyl carbonic acids and further acid plant treatment agents - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS)	E
DIN 38407-F 36 2014-09	Determination of selected active substances of plant protection products and other organic substances in water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS or -HRMS) after direct injection	E
DIN 38407-F 42 2011-03	Determination of selected polyfluorinated compounds (PFC) in water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC/MS-MS) after solid-liquid extraction	Br
DIN 38407-F 47 2017-07	Determination of selected active pharmaceutical ingredients and other organic substances in water and waste water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS or HRMS) after direct injection (Modification: *With solid-phase enrichment*)	Br, E
MP-00436-DE 2019-02	Determination of amitrole in water by LC-MS/MS	E

1.8 Microbiological analysis

1.8.1 Determination of microorganisms by cultural microbiological analysis, E **)

ISO 11290-1 2017-05	Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. - Part 1: Detection method (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the enrichment broth*)	E

ISO 11290-2 2017-05	Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. - Part 2: Counting methods (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the medium. Shortened procedure ALOA One Day. Confirmation using MALDI-TOF.*)	E
ISO 11731 2017-05	Water quality - Enumeration of legionella (Modification: *Alternatively, the confirmation is also carried out using MALDI-TOF)*	E, St
ISO 21527-1 2008-07	Horizontal method for the enumeration of yeasts and moulds - Colony-count technique - Part 1: Colony count technique in products with water activity greater than 0,95 (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the medium*	E
DIN EN ISO 6222 1999-07	Water quality - Enumeration of culturable microorganisms - Colony count by inoculation in a nutrient agar culture medium (Here: *Also for recooling water, industrial water*)	E, St
DIN EN ISO 6888-1 2019-06	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) - Part 1: Technique using Baird-Parker agar medium (Modification for waters*: a 100 mL sample is filtered (0.45µm membrane filter) and the filter placed on the Baird Parker agar*.)	E
DIN EN ISO 7899-1 1999-07	Water quality - Detection and enumeration of intestinal enterococci in surface water and waste water - Part 1: Miniaturised method by inoculation in liquid medium (MPN technique)	E, St
DIN EN ISO 7899-2 2000-11	Water quality - Detection and enumeration of intestinal enterococci - Part 2: Membrane filtration method	E, St
DIN EN ISO 9308-1 2017-09	Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method for waters with low bacterial background flora	E, St

DIN EN ISO 9308-2 2014-06	Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 2: Most probable number method	E, St
DIN EN ISO 9308-3 1999-07	Water quality - Detection and enumeration of Escherichia coli and coliform bacteria in surface water and waste water - Part 3: Miniaturised method by inoculation in liquid medium (MPN technique)	E, St
DIN EN ISO 10272-1 2017-09	Microbiology of food and animal feeding stuffs - Horizontal methods for the detection and enumeration of Campylobacter spp. - Part 1: Detection method (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the enrichment broth*)	E
DIN EN ISO 11731 2019-03	Water quality - Enumeration of legionella (Modification: Alternatively, the confirmation is also carried out using MALDI-TOF*)*	E, St
DIN EN ISO 13720 2010-12	Meat and meat products - Enumeration of presumptive Pseudomonas spp. (Here: *Also for water from recooler systems*) (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the medium. Confirmation using MALDI-TOF.*)	E
DIN EN ISO 13843 2018-03	Water quality - Requirements for establishing performance characteristics of quantitative microbiological methods	E, St
DIN EN ISO 14189 2016-11	Water quality - Enumeration of Clostridium perfringens - Method using membrane filtration	E, St
DIN EN ISO 16266 2008-05	Water quality - Detection and enumeration of *Pseudomonas aeruginosa* - Membrane filtration method (Here: Also for recooling water, industrial water; (Modification: *confirmation also with MALDI-TOF*)	E, St
DIN EN ISO 16654 2017-08	Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Escherichia coli O157 (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and transferred to the enrichment broth*)	E
DIN EN ISO 19250 2013-06	Water quality - Determination of Salmonella spp. (Modification: *confirmation using MALDI-TOF*)	E

DIN EN 26461-1 1993-04	Water quality; Detection and enumeration of the spores of sulphite-reducing anaerobes (clostridia); Part 1: Method by enrichment in a liquid medium	E
DIN 38411-6 1991-06	Detection of Escherichia coli and coliform bacteria (Modification: *confirmation also with MALDI-TOF*)	E
ASU L 59.00-2 1988-05	Detection of faecal streptococci in natural mineral water, spring and bottled water; Reference method	E
ASU L 59.00-3 1988-05	Detection of *Pseudomonas aeruginosa* in natural mineral water, spring and bottled water; reference method	E
ASU L 59.00-4 1988-05	Detection of sulphite-reducing, spore-forming anaerobes in natural mineral water, spring water and bottled water; reference method	E
ASU L 59.00-5 1988-05	Determination of the colony count in natural mineral water, spring water and bottled water; reference method	E
VDLUFA VI, M 7.12.2 1993	Determination of pseudomonas - Colony count method with C-F-C-selective agar	E
DVGW twin 10 2015-03	Guidance for sampling from water meters for the purpose of microbiological analysis for *Pseudomonas* aeruginosa (Here: *analytics*)	E, St
Enterolert / Quanti-Tray 2015-09	Detection of *enterococci* using finished reagents	E
Legionella latex test (Oxoid) Article DR 0800 M 2016-05	Latex agglutination test for differentiated detection of Legionella pneumophila serogroup 1, serogroups 2 to 14 and seven other Legionella spp. - Serotyping of Legionella	E, St
Directive 98/83/EC, Annex III: 03 November 1998 Revised 2015-10	Quality of water intended for human consumption - Detection of Clostridium perfringens (including spores) by membrane filtration (mCP method) at 44 +1 °C over 21 +3 hours)	E, St
Directive 76/160/EEC 2008-12	Determination of *Escherichia coli* and intestinal enterococci	E
TrinkwV Section 15 (1c) 2018-01	Quantitative determination of culturable microorganisms - Colony count at 22°C and 36 °C (Modification: *Decadic dilution for industrial water, water from recooler systems*)	E, St

UBA Recommendation 2017-06	Recommendation of the Federal Environmental Agency for the sampling and detection of Legionella in evaporative cooling plants, cooling towers and wet separators (Here: *Sections E and F taking into account Annexes 1 and 2*)	E, St
MP-00451-DE 2019-02	Water analysis - Quantitative detection and counting method for Flexibacter/Sporocytophaga (Schindler method)	E
MP-00602-DE 2019-04	Water and beverage analysis - Quantitative detection and counting method for *Aeromonas species* (Schindler method)	E
MP-00464-DE 2019-02	Water and beverage analysis - Quantitative detection of yeast and mould in beverages by membrane filtration	E
MP-00468-DE 2019-02	Water and beverage analysis - Qualitative detection of lactose-negative Enterobacteriaceates based on ASU L 59.00-1 (1988-05) (mod.), Schindler method using membrane filtration	E

1.8.2 Identification of microorganisms using MALDI-TOF, **)

MP-00577-DE 2019-02	Horizontal method - Identification of cultured bacteria using MALDI-TOF	E
MP-01000-DE 2019-04	Horizontal method - Identification of moulds using MALDI-TOF and/or microscopy (Here: *Only MALDI-TOF*)	E

1.8.3 Identification of microorganisms using microscopy

MP-01000-DE 2019-04	Horizontal method - Identification of moulds using MALDI-TOF and/or microscopy (Here: Only *microscopy*)	E

1.9 Molecular biological analysis using real-time PCR, **)

DIN 10135 2013-05	Microbiology of food and animal feeding stuffs - Polymerase chain reaction (PCR) for the detection of food-borne pathogens - Method for the detection of salmonella (Modification for waters: *the specified sample volume is filtered (0.45 µm membrane filter) and the filter is transferred to the enrichment broth*)	E

MP-00536-DE 2019-02	Horizontal method - Detection and confirmation of *Listeria monocytogenes* by real-time polymerase chain reaction	E
MP-00537-DE 2019-04	Horizontal method - Detection and confirmation of *Escherichia coli* O157 by real-time polymerase chain reaction	E
MP-00542-DE 2019-02	Horizontal method - Detection and confirmation of *Campylobacter spp.* by real-time polymerase chain reaction	E
MP-00544-DE 2019-02	Horizontal method - Detection and confirmation of *Yersina enterocolitica* by real-time polymerase chain reaction	E
MP-00545-DE 2019-02	Horizontal method - Detection and confirmation of *Legionella spp.* by real-time polymerase chain reaction	E
MP-00546-DE 2019-02	Horizontal method - Detection and confirmation of *Shigella spp.* by real-time polymerase chain reaction	E
MP-00693-DE 2019-02	Horizontal method - Detection and confirmation of *Mycobacterium avium* by real-time polymerase chain reaction	E
MP-00547-DE 2019-02	Horizontal method - Detection and confirmation of *Vibrio cholerae* by real-time polymerase chain reaction	E
MP-00999-DE 2019-04	Horizontal method - Detection and confirmation of *Clostridium botulinum* using the toxin genes A, B, C, D, E, F by real-time polymerase chain reaction	E
MP-00555-DE 2019-02	Horizontal procedure - Detection and confirmation of verotoxin 1 and 2 forming *Escherichia coli* by real-time polymerase chain reaction	E
MP-00697-DE 2019-02	Horizontal method - Detection and confirmation of *Serpula lacrimans* by real-time polymerase chain reaction	E
MP-00559-DE 2019-02	Horizontal method - Detection and confirmation of *Listeria spp.* by real-time polymerase chain reaction	E
MP-00560-DE 2019-02	Horizontal method - Detection and confirmation of *Campylobacter jejuni* by real-time polymerase chain reaction	E
MP-00561-DE 2019-02	Horizontal method - Detection and confirmation of *Legionella pneumophilia* by real-time polymerase chain reaction	E

2 Tests in accordance with the German Drinking Water Ordinance - TrinkwV -

Sampling

Method	Title	Location
DIN EN ISO 5667-1 (A 4) 2007-04	Water quality - Sampling - Part 1: Guidance on the design of sampling programmes and sampling techniques	E, St
DIN ISO 5667-5 (A 14) 2011-02	Water quality - Sampling - Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems	E, St
DIN EN ISO 5667-3 (A 21) 2013-03	Water quality - Sampling - Part 3: Preservation and handling of water samples	
DIN EN ISO 19458 (K 19) 2006-12	Water quality - Sampling for microbiological analysis	E, St
Recommendation of the Federal Environment Agency: 18 December 2018	Assessment of drinking water quality with respect to the parameters lead, copper and nickel	E, St

ANNEX 1: MICROBIOLOGICAL PARAMETERS

PART I: General requirements for drinking water

No.	Parameter	Method	Location
1	Escherichia coli (E. coli)	DIN EN ISO 9308-1 (K 12) 2017-09	E, St
		DIN EN ISO 9308-2 (K 6-1) 2014-06	E, St
2	Enterococci	DIN EN ISO 7899-2 (K 15) 2000-11	E, St
		Enterolert®-DW	E

PART II: Requirements for drinking water intended for transfer in sealed containers

No.	Parameter	Method	Location
1	Escherichia coli (E. coli)	DIN EN ISO 9308-1 (K 12) 2017-09	E, St
		DIN EN ISO 9308-2 (K 6-1) 2014-06	E, St
2	Enterococci	DIN EN ISO 7899-2 (K 15) 2000-11	E, St
		Enterolert®-DW	E
3	Pseudomonas aeruginosa	DIN EN ISO 16266 (K 11) 2008-05	E, St

ANNEX 2: CHEMICAL PARAMETERS

PART I: Chemical parameters whose concentration does not usually increase in the distribution network, including the drinking water installation

No.	Parameter	Method	Location
1	Acrylamide	DIN 38413-P 6 2007-02	E
2	Benzene	DIN 38407-F 43 2014-10	E
3	Boron	DIN EN ISO 17294-2 (E 29) 2017-01	E
4	Bromate	DIN EN ISO 15061 (D 34) 2001-12	E
5	Chromium	DIN EN ISO 17294-2 (E 29) 2017-01	E

No.	Parameter	Method	Location
6	Cyanide	DIN EN ISO 14403-2 (D 3) 2012-10	E
7	1,2-dichloroethane	DIN 38407-F 43 2014-10	E
8	Fluoride	DIN EN ISO 10304-1 (D 20) 2009-07	E
9	Nitrate	DIN EN ISO 10304-1 (D 20) 2009-07 DIN ISO 15923-1 (D 49) 2014-07	E
10	Plant protection product active ingredients and biocidal product active ingredients	DIN EN ISO 6468 (F 1) 1997-02 (Modification: *measurement using GC-MS*) DIN EN ISO 11369 (F 12) 1997-11 (Modification: *measurement using LC-MS/MS*) DIN 38407-F 35 2010-10 DIN 38407-F 36 2014-09 DIN 38407-F 37 2013-11 DIN ISO 16308 (F 45) 2017-09	E
11	Plant protection product active ingredients and biocidal product active ingredients total	DIN EN ISO 6468 (F 1) 1997-02 (Modification: *measurement using GC-MS*) DIN EN ISO 11369 (F 12) 1997-11 (Modification: *measurement using LC-MS/MS*) DIN 38407-F 35 2010-10 DIN 38407-F 36 2014-09 DIN 38407-F 37 2013-11 DIN ISO 16308 (F 45) 2017-09	E
12	Mercury	DIN EN ISO 12846 (E 12) 2012-08	E
13	Selenium	DIN EN ISO 17294-2 (E 29) 2017-01	E
14	Tetrachloroethene and trichloroethylene	DIN 38407-F 43 2014-10	E
15	Uranium	DIN EN ISO 17294-2 (E 29) 2017-01	E

PART II: Chemical parameters whose concentration may increase in the distribution network, including the drinking water installation

No.	Parameter	Method	Location
1	Antimony	DIN EN ISO 17294-2 (E 29) 2017-01	E
2	Arsenic	DIN EN ISO 17294-2 (E 29) 2017-01	E
3	Benzo[a]pyrene	DIN 38407-F 39 2011-09	E
4	Lead	DIN EN ISO 17294-2 (E 29) 2017-01	E
5	Cadmium	DIN EN ISO 17294-2 (E 29) 2017-01	E
6	Epichlorohydrin	not used	
7	Copper	DIN EN ISO 17294-2 (E 29) 2017-01	E
8	Nickel	DIN EN ISO 17294-2 (E 29) 2017-01	E
9	Nitrite	DIN ISO 15923-1 (D 49) 2014-07 DIN EN 26777 (D 10) 1993-04	E St
10	Polycyclic aromatic hydrocarbons (PAH)	DIN 38407-F 39 2011-09	E

No.	Parameter	Method	Location
11	Trihalomethanes (THM)	DIN 38407-F 30 2007-12 DIN 38407-F 43 2014-10	E
12	Vinyl chloride	DIN 38407-F 43 2014-10	E

ANNEX 3: INDICATOR PARAMETERS

Part I: General indicator parameters

No.	Parameter	Method	Location
1	Aluminium	DIN EN ISO 17294-2 (E 29) 2017-01	E
2	Ammonium	DIN ISO 15923-1 (D 49) 2014-07	E
3	Chloride	DIN ISO 15923-1 (D 49) 2014-07	E
4	Clostridium perfringens (including spores)	DIN EN ISO 14189 (K 24) 2016-11	E, St
5	Coliform bacteria	DIN EN ISO 9308-1 (K 12) 2017-09	E, St
		DIN EN ISO 9308-2 (K 6-1) 2014-06	E, St
6	Iron	DIN EN ISO 17294-2 (E 29) 2017-01	E
7	Colouring (spectral absorption coefficient Hg 436 nm)	DIN EN ISO 7887 (C 1) 2012-04	E, St
8	Odour (as TON)	DIN EN 1622 (B 3) 2006-10	E
		DIN EN 1622 (B 3) 2006-10 (Annex C)	E, St
9	Taste	DEV B1/2 1971	E, St
10	Colony count at 22 °C	DIN EN ISO 6222 (K 5) 1999-07	E, St
		TrinkwV §15 paragraph (1c)	E, St
11	Colony count at 36 °C	DIN EN ISO 6222 (K 5) 1999-07	E, St
		TrinkwV §15 paragraph (1c)	E, St
12	Electrical conductivity	DIN EN 27888 (C 8) 1993-11	E, St
13	Manganese	DIN EN ISO 17294-2 (E 29) 2017-01	E
14	Sodium	DIN EN ISO 17294-2 (E 29) 2017-01	E
15	Organically bound carbon (TOC)	DIN EN 1484 (H 3) 2019-04	E
16	Oxidisability	DIN EN ISO 8467 (H 5) 1995-05	E, St
17	Sulphate	DIN ISO 15923-1 (D 49) 2014-07	E
18	Turbidity	DIN EN ISO 7027-1 (C 21) 2016-11	E, St
19	Hydrogen ion concentration	DIN EN ISO 10523 (C 5) 2012-04	E, St
20	Calcite dissolving capacity	DIN 38404-10 (C 10) 2012-12	E, St

Part II: Specific requirements for drinking water in systems in the drinking water installation

Parameter	Method	Location
Legionella spec.	ISO 11731 2017-05; UBA recommendation 18 December 2018	E, St

APPENDIX 3a: Requirements for drinking water with regard to radioactive substances

not used

Parameters not included in Annexes 1 to 3 of the German Drinking Water Ordinance

Additional periodic testing

Parameter	Method	Location
Calcium	DIN EN ISO 17294-2 (E 29) 2017-01	E
Potassium	DIN EN ISO 17294-2 (E 29) 2017-01	E
Magnesium	DIN EN ISO 17294-2 (E 29) 2017-01	E
Acid and base capacity	DIN 38409-H 7 2005-12	E, St
Phosphate	DIN EN ISO 6878 (D 11) 2004-09 DIN ISO 15923-1 (D 49) 2014-07	E

The accreditation does not replace the recognition or approval procedure of the competent authority pursuant to Section 15 (4) TrinkwV.

3 Sampling and microbiological analysis of industrial water in accordance with Section 3 (8) 42nd BImSchV

Sampling

Method	Title	Location
DIN EN ISO 19458 (K 19) 2006-12	Water quality - Sampling for microbiological analysis	E, St
	Recommendation of the Federal Environmental Agency for the sampling and detection of Legionella in evaporative cooling plants, cooling towers and wet separators dated 06.03.2020, Sections C and D	

Microbiological analyses

Parameter	Method	Location
Legionella	DIN EN ISO 11731 (K 23) 2019-03	E, St
	Recommendation of the Federal Environmental Agency for the sampling and detection of Legionella in evaporative cooling plants, cooling towers and wet separators dated 06.03.2020, Sections E and F taking into account Annexes 1 and 2	
Colony count at 22°C and 36°C	DIN EN ISO 6222 (K 5) 1999-07	E, St

4 Analysis of soils, contaminated sites, waste and materials for recovery and disposal, recycled materials, substitute building materials, sediments, sewage sludge and sludge, compost and digestates, wood waste, ash, slag, building materials and mixtures of building materials

4.1 Sampling

DIN EN ISO 5667-13 (S 1) 2011-08	Water quality - Sampling - Part 13: Guidance on sampling of sludges	Br
DIN 19698-1 2014-05	Characterisation of solids - Sampling of solid and semi-solid materials - Part 1: Guidance for the segmental sampling of stockpiles of unknown composite	Br
DIN 19747 2009-07	Investigation of solids - Pretreatment, preparation and processing of samples for chemical, biological and physical investigations (Here: *pretreatment of samples on site; homogenisation and reduction to laboratory sample*)	Br
LAGA Guideline PN 98 2004-07	Guideline on procedures for physical, chemical and biological examination in connection with the recycling/disposal of waste - Basic rules for the taking of samples from solid and semi-solid waste and deposited materials	Br

4.2 Sampling and sample preparation

DIN ISO 11466 1997-06	Soil quality - Extraction of trace elements soluble in aqua regia	Br
DIN EN ISO 16720 2007-06	Soil quality - Pretreatment of samples by freeze-drying for subsequent analysis	Br
DIN EN 12457-1 2003-01	Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials and sludges - Part 1: One stage batch test at a liquid to solid ratio of 2 l/kg with particle size below 4 mm (without or with size reduction)	Br
DIN EN 12457-2 2003-01	Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials 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)	Br

DIN EN 12457-3 2003-01	Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials and sludges - Part 3: Two stage batch test at a liquid to solid ratio of 2 l/kg and 8 l/kg for materials with high solid content with particle size below 4 mm (without or with size reduction)	Br
DIN EN 12457-4 2003-01	Characterisation of waste - Leaching - Compliance test for leaching of granular waste materials and sludges - Part 4: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 10 mm (without or with size reduction)	Br
DIN EN 13346 (S 7a) 2001-04	Characterisation of sludges - Determination of trace elements and phosphorus - Aqua regia extraction methods	Br
DIN EN 13650 2002-01	Soil improvers and growing media - Extraction of aqua regia soluble elements (Modification: *digestion by microwave*)	Br
DIN EN 14405 2017-05	Characterisation of waste - Leaching behaviour test - Up-flow percolation test (under specified conditions)	Br
DIN EN 16174 2012-11	Sludge, treated biowaste and soil - Digestion of aqua regia soluble fractions of elements	Br
DIN EN 1744-3 2002-11	Tests for chemical properties of aggregates - Part 3: Preparation of eluates by leaching of aggregates	Br
DIN 19527 2012-08	Leaching of solid materials - Batch test for the examination of the leaching behaviour of organic substances at a liquid to solid ratio of 2 l/kg	Br
DIN 19528 2009-01	Leaching of solid materials - Percolation method for the joint examination of the leaching behaviour of inorganic and organic substances	Br
DIN 19529 2015-12	Leaching of solid materials - Batch test for the examination of the leaching behaviour of inorganic and organic substances at a liquid to solid ratio of 2 l/kg	Br
DIN 38414-S 4 1984-10	Determination of leachability with water (Modification: *taking into account the procedural instructions of BBodSchV Annex 1, 3.1.2*)	Br

Information Sheet No. 20 LUA NRW 2000-03	Recommendations for the implementation and evaluation of column tests in accordance with the Federal Soil Protection and Contaminated Sites Ordinance (BBodSchV)	Br
BBodSchV, Annex 1, 3.1.2 2017-09	Extraction of the soil saturation extract	Br
LAGA EW 98 2017-09	Guideline on procedures for the physical, chemical examination of waste, contaminated soils and materials from brownfields - Preparation and analysis of aqueous eluates	Br

4.3 Sensory analysis

DIN 19682-2 2014-07	Soil quality - Field tests - Part 2: Determination of soil texture	Br
VDLUFA I, D 2.1 1997	Determination of soil texture of fine soil with the feel test	Br
MP-02014-DE 2019-06	Determination of organoleptic parameters in solids - Colour, odour, appearance and consistency	Br

4.4 Determination of physical and physico-chemical indicators and sum parameters

DIN 4030-2 2008-06	Assessment of water, soil and gases for their aggressiveness to concrete - Part 2: Sampling and analysis of water and soil samples (Here: Analysis)	Br

4.4.1 By gravimetry

DIN ISO 11465 1996-12	Soil quality - Determination of dry matter and water content on a mass basis - Gravimetric method	Br
DIN EN 12879 (S 3a) 2001-02	Characterisation of sludges - Determination of loss on ignition of dry mass	Br
DIN EN 13039 2012-01	Soil improvers and growing media - Determination of organic matter content and ash	Br
DIN EN 14346 2007-03	Characterisation of waste - Calculation of dry matter by determination of dry residue or water content	Br

DIN EN 15169 2007-05	Characterisation of waste - Determination of loss on ignition in waste, sludge and sediments	Br
DIN EN 15216 2008-01	Characterisation of waste - Determination of total dissolved solids (TDS) in water and eluates	Br
DIN EN 15934 2012-11	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content	Br
DIN EN 15935 2012-11	Sludge, treated biowaste, soil and waste - Determination of loss on ignition	Br
DIN 38409-H 1 1987-01	Determination of total dry residue, filtrate dry residue and residue on ignition	Br
DIN 38414-S 2 1985-11	Determination of water content and dry residue or dry matter	Br
DIN 38414-S 22 2018-10	Determination of dry residue by freezing and preparation of the freeze-dried mass of sludge	Br
Methodenbuch Bundesgütegemeinschaft Kompost e.V.; 5th Edition, Section II, A1 2006-09	Moisture content	Br
LAGA KW/04 2009-12	Sum of extractable lipophilic substances	Br

4.4.2 By photometry with flow and flow rate analysis (FIA, CFA)

DIN ISO 11262 2012-04	Soil quality - Determination of total cyanide	Br
DIN 38409-H 16 1984-06	Determination of the phenol index (Modification for soils: *Elutriation of samples with purified water, pH = 0.5; steam distillation, CFA analysis*)	Br

4.4.3 By titrimetry

DIN EN 16166 2012-11	Sludge, treated biowaste and soil - Determination of adsorbable organically bound halogens (AOX)	Br
DIN EN 16169 2012-11	Sludge, treated biowaste and soil - Determination of Kjeldahl nitrogen	Br
DIN 38414-S 17 2017-01	Determination of the organically bound halogens amenable to extraction (EOX)	Br
DIN 38414-S 18 2019-06	Determination of adsorbed organically bound halogens in sludge and sediments (AOX) (Modification for soils: *Elutriation of sample with sodium nitrate solution, shaking after addition of activated carbon*)	Br
VDLUFA II.2, 4.5.1 2008	Determination of the alkaline agents in lime, converter lime, lime fertilisers from [...] as well as organic and organic-mineral fertilisers	Br
Methodenbuch Bundesgütegemeinschaft Kompost e.V.; 5th Edition Section III, C 3 2006-09	Total content of organic acids	Br

4.4.4 By potentiometry

DIN EN 12176 1998-06	Characterisation of sludge - Determination of the pH value	Br
DIN EN 13038 2012-01	Soil improvers and growing media - Determination of electrical conductivity	Br
DIN EN 15933 2012-11	Sludge, treated biowaste and soil - Determination of pH	Br

4.4.5 By combustion analysis

DIN ISO 10694 1996-08	Soil quality - Determination of organic carbon and total carbon after dry combustion (elemental analysis)	Br
DIN ISO 13878 1998-11	Soil quality - Determination of total nitrogen content by dry combustion (“elemental analysis”)	Br

DIN ISO 15178 2001-02	Soil quality - Determination of total sulphur content after dry combustion (elemental analysis)	Br
DIN EN 15170 2009-05	Characterisation of sludges - Determination of calorific value	Br
DIN EN 16168 2012-11	Sludge, treated biowaste and soil - Determination of total nitrogen using dry combustion method	Br
DIN 19539 2016-12	Investigation of solids - Temperature-dependent differentiation of total carbon (TOC_{400}, ROC, TIC_{900})	Br
DIN 51900-1 2000-04 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	Br
VDLUFA II.1, 3.5.2.7 1995	Determination of total nitrogen (restriction: *Application on sewage sludge matrix*)	Br

4.4.6 By respirometer

DepV Annex 4, 3.3.1 2017-09	Breathability, determined over 4 days in laboratory test (AT_4)	Br

4.5 Determination of anions and cations

4.5.1 By photometry

DIN EN 16318 2016-07	Fertilisers and liming materials - Determination of chromium(VI) by photometry (method A) and by ion chromatography with spectrophotometric detection (method B)	Br
DIN 19734 1999-01	Soil quality - Determination of chromium(VI) in phosphate extract	Br

4.5.2 By photometry with flow and flow rate analysis (FIA, CFA)

DIN EN ISO 17380 2013-10	Soil quality - Determination of total cyanide and easily liberatable cyanide - Continuous flow analysis method	Br

Methodenbuch Bundesgütegemeinschaft Kompost e.V.; 5th Edition, Section III, A.2.1 2006-09	Substances in the $CaCl_2$ extract - Nitrate, ammonium and magnesium	Br

4.5.3 By ion chromatography (IC)

DIN EN 16318 2016-07	Fertilisers and liming materials - Determination of chromium(VI) by photometry (method A) and by ion chromatography with spectrophotometric detection (method B)	Br

4.6 Determination of elements

4.6.1 By inductively coupled plasma atomic emission spectrometry (ICP-OES) *

DIN ISO 22036 2009-06	Soil quality - Determination of trace elements in extracts of soil by inductively coupled plasma atomic emission spectrometry (ICP-AES)	Br
DIN EN 16170 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma optical emission spectrometry (ICP-OES)	Br
Methodenbuch Bundesgütegemeinschaft Kompost e.V.; 5th Edition Section III, A 2.2 2006-09	Substances in CAL extract - Phosphorus and potassium	Br

4.6.2 By inductively coupled plasma mass spectrometry (ICP-MS) *

ISO/TS 16965 Prestandard 2013-09	Soil quality - Determination of elements by inductively coupled plasma mass spectrometry (ICP-MS)	Br
DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS)	Br

4.6.3 Using spectrometric analysis techniques

DIN EN ISO 17294-2 (E 29) 2017-01	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (Modification: *determination in aqua regia extraction solution*)	Br
DIN EN ISO 11885 (E 22) 2009-09	Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES) (Modification: *determination in aqua regia extraction solution*)	Br
DIN EN ISO 12846 (E 12) 2012-08	Water quality - Determination of mercury - Method using atomic absorption spectrometry (AAS) with and without enrichment (Modification: *determination in aqua regia extraction solution*)	Br
DIN ISO 16772 2005-06	Soil quality - Determination of mercury in aqua regia soil extracts with cold-vapour atomic spectrometry or cold-vapour atomic fluorescence spectrometry	Br
DIN EN 1483 2007-07	Water quality - Determination of mercury - Method using atomic absorption spectrometry (Modification: *determination in aqua regia extraction solution*)	Br
DIN EN 16175-1 2016-12	Sludge, treated biowaste and soil - Determination of mercury - Part 1: Cold-vapour atomic absorption spectrometry (CV-AAS)	Br
DIN EN 16175-2 2016-12	Sludge, treated biowaste and soil - Determination of mercury - Part 2: Cold-vapour atomic fluorescence spectrometry (CV-AFS)	Br

4.7 Determination of organic compounds

4.7.1 By gas chromatography with conventional detectors (UV, FID, DAD detector)

DIN EN ISO 16703 2011-09	Soil quality - Determination of content of hydrocarbon in the range C_{10} to C_{40} by gas chromatography	Br

DIN CEN ISO/TS 16558-2 DIN SPEC 8109 2015-12	Soil quality - Risk-based petroleum hydrocarbons - Part 2: Determination of aliphatic and aromatic fractions of semi-volatile petroleum hydrocarbons using gas chromatography with flame ionization detection (GC/FID)	Br
DIN EN 14039 2005-01	Characterisation of waste - Determination of hydrocarbon content in the range of C_{10} to C_{40} by gas chromatography	Br
LAGA KW/04 2009-12	Determination of the content of hydrocarbons in waste - Examination and analysis strategy (Deviation for soils: *extraction in ultrasonic bath*)	Br

4.7.2 By gas chromatography with mass selective detectors (GC-MS, GC-MS/MS) **

DIN EN ISO 22032 (F 28) 2009-07	Water quality - Determination of selected polybrominated diphenyl ethers in sediment and sewage sludge - Method using extraction and gas chromatography/mass spectrometry	Br
ISO/TS 17182 Prestandard 2014-12	Soil quality - Determination of some selected phenols and chlorophenols - Gas chromatographic method with mass spectrometric detection (Modification: Extraction with hexane after derivatisation)	Br
DIN EN ISO 16558-1 2015-12 Amendment 1 Draft Standard 2018-04	Soil quality - Risk-based petroleum hydrocarbons - Part 1: Determination of aliphatic and aromatic fractions of volatile petroleum hydrocarbons using gas chromatography (static headspace method)	Br
DIN EN ISO 22155 2016-07	Soil quality - Gas chromatographic determination of volatile aromatic and halogenated hydrocarbons and selected ethers - Static headspace method	Br
DIN EN ISO 23161 2019-04	Soil quality - Determination of selected organotin compounds - Gas chromatographic method	Br
DIN ISO 10382 2003-05	Soil quality - Determination of organochlorine pesticides and polychlorinated biphenyls - Gas chromatographic method with electron capture detection (Modification: *extension to other organochlorine pesticides; extraction using acetone and hexane; measurement by GC/MS*)	Br

DIN ISO 11916-2 2014-11	Soil quality - Determination of selected explosives and related compounds - Part 2: Method using gas chromatography (GC) and electron capture detection (ECD) or mass spectrometric detection (MS)	Br
DIN ISO 14154 2005-12	Soil quality - Determination of selected chlorophenols - Gas chromatographic method with electron capture detection (Modification: *Measurement by GC/MS; extension to include pentachlorophenol (PCP) in sewage sludge)*	Br
DIN ISO 18287 2006-05	Soil quality - Determination of polycyclic aromatic hydrocarbons (PAH) - Gas chromatographic method with mass spectrometric detection (GC-MS)	Br
DIN CEN/TS 16182 DIN SPEC 91262 2012-05	Sludge, treated biowaste and soil - Determination of nonylphenols (NP) and nonylphenol-mono and diethoxylates by gas chromatography with mass selective detection (GC-MS)	Br
DIN CEN/TS 16183 DIN SPEC 91265 2012-05	Sludge, treated biowaste and soil - Determination of selected phthalates using capillary gas chromatography with mass spectrometric detection (GC-MS)	Br
DIN EN 15308 2016-12	Characterisation of waste - Determination of selected polychlorinated biphenyls (PCB) in solid waste by gas chromatography with electron capture or mass spectrometric detection	Br
DIN EN 15527 2008-09	Characterisation of waste - Determination of polycyclic aromatic hydrocarbons (PAHs) in waste using gas chromatography mass spectrometry (GC/MS)	Br
DIN EN 16167 2019-06	Soil, treated biowaste and sludge - Determination of polychlorinated biphenyls (PCB) by gas chromatography with mass selective detection (GC-MS) and gas chromatography with electron-capture detection (GC-ECD)	Br
DIN EN 17322 Draft Standard 2018-12	Environmental solid matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography and mass selective detection (GC-MS) or electron-capture detection (GC-ECD)	Br
DIN 19742 2014-08	Soil quality - Determination of selected phthalates in sludge, sediment, solid waste and soil after extraction and determination using gas chromatography mass spectrometry (GC-MS)	Br

HLUG, Handbuch Altlasten, Volume 7, Part 4 2000-10	Determination of BTEX/LHKW in solids from brownfields	Br
HLUG Handbuch Altlasten, Volume 7, Part 5 2006-12	Determination of selected typical explosive compounds in solids from brownfields (Modification: *measurement using GC-MS*)	Br
EPA 8061A 1996-12	Phthalate esters by gas chromatography with electron capture detection (GC/ECD) (Modification: *extraction with acetonitrile after salt addition, measurement using GC/MS*)	Br
EPA 8270E 2018-06	Semivolatile organic compounds by gas chromatography/mass spectrometry (GC/MS)	Br
MP-01974-DE 2018-01	GC-MS screening; Qualitative orientation analysis of SVOCs in waters, soils and soil eluates, and in waste and waste eluates by GC/MS after liquid-liquid extraction	Br
MP-02002-DE 2018-02	GC-MS screening; Qualitative orientation analysis of VOCs in waters, solids and gases by HS-GC/MS	Br

4.7.3 By liquid chromatography with conventional detectors (UV, FID, DAD detector)

DIN ISO 11916-1 2014-11	Soil quality - Determination of selected explosives and related compounds - Part 1: Method using high-performance liquid chromatography (HPLC) with UV detection	Br
DIN 38407-22 (F 22) 2001-10	Determination of glyphosate and aminomethyl phosphic acid (AMPA) by high performance liquid chromatography (HPLC), post-column derivatisation and fluorescence detection (Modification: *measurement using HPLC with fluorescence detection without post-column derivatisation)*	Br
Information Sheet No. 1 LUA NRW 1994-04	Determination of polycyclic aromatic hydrocarbons (PAH) in soil samples	Br
VDLUFA VII, 3.3.3.1 2011	Determination of polycyclic aromatic hydrocarbons (PAH) in soils, sewage sludges and composts	Br

4.7.4 By gas chromatography with mass selective detectors (LC-MS, LC-MS/MS)

DIN ISO 11264 2005-11	Soil quality - Determination of herbicides - Method using HPLC with UV-detection (Modification: *measurement using LC-MS/MS*)	Br
DIN CEN/TS 16189 DIN SPEC 91263 2012-05	Sludge, treated biowaste and soil - Determination of linear alkylbenzene sulfonates (LAS) by high-performance liquid chromatography (HPLC) with fluorescence detection (FLD) or mass selective detection (MS)	Br
DIN 38414-14 (S 14) 2011-08	Determination of selected polyfluorinated compounds (PFC) in sludge, compost and soil - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS)	Br

5 Analysis of soil gas by gas chromatography with mass selective detectors (GC-MS, GC-MS/MS)

VDI 3865 Sheet 3 1998-06	Measurement of organic soil pollutants - Gas-chromatographic determination of volatile organic compounds in soil gas adsorption at activated carbon and desorption with organic solvents (Modification: *desorption with benzyl alcohol after enrichment on activated carbon*)	Br
VDI 3865 Sheet 4 2000-12	Measurement of organic soil pollutants - Gas chromatographic determination of volatile organic compounds in soil gas - Direct measurement	Br
MP-02002-DE 2018-02	GC-MS screening; Qualitative orientation analysis of VOCs in waters, solids and gases by HS-GC/MS	Br

6 Analysis of material and waste samples, and of dusts and air (indoor air pollutants) for asbestos and artificial mineral fibres (AMF) *

ISO 22262-2 2014-09	Air quality - Bulk materials - Part 2: Quantitative determination of asbestos by gravimetric and microscopical methods	Br
VDI 3492 2013-06	Indoor air measurement - Ambient air measurement - Measurement of inorganic fibrous particles - Scanning electron microscopy method (Here: *section 7 - filter assessment on SEM*)	Br

VDI 3866 Sheet 1 2000-12	Determination of asbestos in technical products - Principle - Sampling and sample preparation (Here: *Without sampling*)	Br
VDI 3866 Sheet 5 2017-06	Determination of asbestos in technical products - Scanning electron microscopy method	Br
VDI 3876 2018-11	Measurement of asbestos in construction and demolition waste and recycling materials produced thereof - Sample preparation and analysis	Br
VDI 3877 Sheet 1 2011-09	Indoor air pollution - Measurement of fibrous dust settled on surfaces - Sampling and analysis (REM/EDXA) (Here: *analytics*)	Br
BGI/GUV-I 505-46/DGUV Information 213-546 2014-02	Fibres - 02 - REM / EDXA (Here: *section 3: Sample preparation and section 4: Examination with the scanning electron microscope*)	Br
BIA Workbook No. 7487 1997-04	Method for analytical determination of low mass contents of asbestos fibres in powders and dusts with REM/EDX (Here: *analytics*)	Br
MP-01814-DE 2019-06	Determination of the carcinogenicity index KI by scanning electron microscope with EDXA (without determination of boron) in material and waste samples	Br

7 Analysis of drinking water

7.1 Determination of physical and physico-chemical indicators, sum parameters and gaseous components in drinking water

7.1.1 By gravimetry

DIN 38409-H 1 1987-01	Determination of total dry residue, filtrate dry residue and residue on ignition	E
DIN 38409-H 2 1987-03	Determination of filterable matter and the residue on ignition	E
DIN EN 872 (H 33) 2005-04	Water quality - Determination of suspended solids - Method by filtration through glass fibre filters	E

7.1.2 By photometry

DIN EN ISO 7887 (C 1) 2012-04	Water quality - Examination and determination of colour	E,St
DIN EN ISO 7027-1 (C 21) 2016-11	Water quality - Determination of turbidity - Part 1: Quantitative method	E,St
DIN 38404-C 3 2005-07	Determination of absorption in the range of UV radiation, spectral absorption coefficient	E,St
DIN EN ISO 7393-2 (G 4-2) 2019-03	Water quality - Determination of free chlorine and total chlorine - Part 2: Colorimetric method using N,N-diethyl-1,4-phenylenediamine, for routine control purposes	E, St
DIN EN 26777 (D 10) 1993-04	Water quality; determination of nitrite; spectrometric method	St

7.1.3 By titrimetry

DIN EN ISO 8467 (H 5) 1995-05	Water quality - Determination of permanganate index	E,St
DIN 38409-H 6 1986-01	Water hardness	E
DIN 38409-H 7 2005-12	Determination of acid and base-neutralising capacities	E,St
DIN EN 25813 (G 21) 1993-01	Water quality - Determination of dissolved oxygen - Iodometric method	E

7.1.4 By potentiometry

DIN 38404-C 4 1976-12	Determination of temperature	E,St
DIN EN ISO 10523 (C 5) 2012-04	Water quality - Determination of pH	E,St
DIN EN 27888 (C 8) 1993-11	Water quality; Determination of electrical conductivity	E,St

7.1.5 By combustion analysis

DIN EN 1484 (H 3) 2019-04	Water analysis - Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)	E
DIN EN 12260 (H 34) 2003-12	Water quality - Determination of nitrogen - Determination of bound nitrogen (TNb), following oxidation to nitrogen oxides	E

7.1.6 By volumetry

DIN 38409-H 9 1980-07	Determination of the settleable matter by volume in water and waste water	E

7.2 Determination of anions and cations in drinking water

7.2.1 By photometry

DIN EN ISO 6878 (D 11) 2004-09	Water quality - Determination of phosphorus - Ammonium molybdate photometric method	E
DIN 38405-D 27 2017-10	Determination of sulphide by gas extraction	E
DIN ISO 15923-1 (D 49) 2014-07	Water quality - Determination of selected parameters by discrete analysis systems - Part 1: Ammonium, nitrate, nitrite, chloride, orthophosphate, sulphate and silicate with photometric detection (Expansion: *iron II, chromium VI*)	E
MP-00404-DE 2019-02	Determination of urea in water by enzymatic cleavage and subsequent detection by spectrometric detection of ammonium in the single analysis system	E

7.2.2 By photometry with flow and flow rate analysis (FIA, CFA)

DIN EN ISO 14403-2 (D 3) 2012-10	Water quality - Determination of total cyanide and free cyanide using flow analysis (FIA and CFA) - Part 2: Method using continuous flow analysis (CFA)	E
DIN EN ISO 15681-2 (D 46) 2005-05	Water quality - Determination of orthophosphate and total phosphorus contents by flow analysis (FIA and CFA) - Part 2: Method using continuous flow analysis (CFA)	E

7.2.3 By ion chromatography (IC)

DIN EN ISO 10304-1 (D 20) 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	E
DIN EN ISO 10304-4 (D 25) 1999-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 4: Determination of chlorate, chloride and chlorite in water with low contamination	E
DIN EN ISO 15061 (D 34) 2001-12	Water quality - Determination of dissolved bromate - Method by liquid chromatography of ions	E

7.3 Determination of elements in drinking water by spectrometry

DIN EN ISO 12846 (E 12) 2012-08	Water quality - Determination of mercury - Method using atomic absorption spectrometry (AAS) with and without enrichment	E
DIN EN ISO 17294-2 (E 29) 2017-01	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes	E

7.4 Determination of organic compounds in drinking water

7.4.1 By gas chromatography with mass selective detectors (GC-MS, GC-MS/MS) **

DIN EN ISO 6468 (F 1) 1997-02	Water quality - Determination of certain organochlorine insecticides, polychlorinated biphenyls and chlorobenzenes - Gas chromatographic method after liquid-liquid extraction (Modification: *measurement using GC-MS*)	E
DIN 38407-F 3 1998-07	Gas chromatographic determination of polychlorinated biphenyls	E
DIN EN ISO 10695 (F 6) 2000-11	Water quality - Determination of selected organic nitrogen and phosphorus compounds - Gas chromatographic method (Modification: *measurement using GC/MS*)	E
DIN EN 12673 (F 15) 1999-05	Water quality - Gas chromatographic determination of some selected chlorophenols in water	E

DIN 38407-F 37 2013-11	Determination of organochlorine pesticides, polychlorinated biphenyls and chlorobenzene in water - Method using gas chromatography and mass spectrometric detection (GC-MS) after liquid-liquid extraction	E
DIN 38407-F 39 2011-09	Determination of selected polycyclic aromatic hydrocarbons (PAHs) - Method using gas chromatography with mass spectrometric detection (GC-MS)	E
DIN 38407-F 43 2014-10	Determination of selected easily volatile organic compounds in water - Method using gas chromatography and mass spectrometry by static headspace technique (HS-GC-MS)	E

7.4.2 By gas chromatography with mass selective detectors (LC-MS, LC-MS/MS) **

DIN EN ISO 11369 (F 12) 1997-11	Water quality - Determination of selected plant treatment agents - Method using high performance liquid chromatography with UV detection after solid-liquid extraction (Modification: *measurement using LC-MS/MS*)	E
DIN 38407-F 35 2010-10	Determination of selected phenoxyalkyl carbonic acids and further acid plant treatment agents - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS)	E
DIN 38407-F 36 2014-09	Determination of selected active substances of plant protection products and other organic substances in water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS or -HRMS) after direct injection	E
DIN ISO 16308 (F 45) 2017-09	Water quality - Determination of glyphosate and AMPA - Method using high performance liquid chromatography (HPLC) with tandem mass spectrometric detection	E
DIN 38407-F 47 2017-07	Determination of selected active pharmaceutical ingredients and other organic substances in water and waste water - Method using high performance liquid chromatography and mass spectrometric detection (HPLC-MS/MS or HRMS) after direct injection (Modification: *With solid-phase enrichment*)	E

MP-00436-DE 2019-02	Determination of amitrole in water by LC-MS/MS	E

7.5 Determination of microorganisms by cultural microbiological analysis, E **)

ISO 11731 2017-05	Water quality - Enumeration of legionella (modification: *confirmation using MALDI-TOF*)	E, St
DIN EN ISO 11731 2019-03	Water quality - Enumeration of legionella (modification: *confirmation using MALDI-TOF*)	E, St
DIN EN ISO 14189 2016-11	Water quality - Enumeration of Clostridium perfringens - Method using membrane filtration	E, St
DIN EN ISO 19250 2013-06	Water quality - Determination of Salmonella spp. (Modification: *confirmation using MALDI-TOF*)	E
DIN 38411-6 1991-06	Detection of Escherichia coli and coliform bacteria	E
DIN EN ISO 13843 2018-03	Water quality - Requirements for establishing performance characteristics of quantitative microbiological methods	E, St
DIN EN ISO 6222 1999-07	Water quality - Enumeration of culturable microorganisms - Colony count by inoculation in a nutrient agar culture medium	E, St
DIN EN 26461-1 1993-04	Water quality - Detection and enumeration of the spores of sulphite-reducing anaerobes (clostridia) - Part 1: Method by enrichment in a liquid medium	E
DIN EN ISO 16266 2008-05	Water quality - Detection and enumeration of *Pseudomonas aeruginosa* - Membrane filtration method	E, St
DIN EN ISO 9308-1 2017-09	Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method for waters with low bacterial background flora	E, St
DIN EN ISO 9308-2 2014-06	Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 2: Most probable number method	E, St
DIN EN ISO 9308-3 1999-07	Water quality - Detection and enumeration of Escherichia coli and coliform bacteria in surface water and waste water - Part 3: Miniaturised method by inoculation in liquid medium (MPN technique)	E, St

DIN EN ISO 7899-1 1999-07	Water quality - Detection and enumeration of intestinal enterococci in surface water and waste water - Part 1: Miniaturised method by inoculation in liquid medium (MPN technique)	E, St
DIN EN ISO 7899-2 2000-11	Water quality - Detection and enumeration of intestinal enterococci - Part 2: Membrane filtration method	E, St
Directive 98/83/EC, Annex III: 03 November 1998 Revised 2015-10	Detection of Clostridium perfringens (including spores) by membrane filtration (mCP method) at 44 +1 °C over 21 +3 hours	E, St
Directive 76/160/EEC 2008-12	Determination of *Escherichia coli* and intestinal enterococci	E
TrinkwV Section 15 (1c) 2018-01	Quantitative determination of culturable microorganisms - Colony count at 22°C and 36 °C	E, St
Enterolert / Quanti-Tray 2015-09	Detection of *enterococci* using finished reagents	E
MP-00451-DE 2019-02	Water analysis - Quantitative detection and counting method for Flexibacter/Sporocytophaga (Schindler method)	E
MP-00602-DE 2019-04	Water and beverage analysis - Quantitative detection and counting method for *Aeromonas species* (Schindler method)	E
MP-00464-DE 2019-02	Water and beverage analysis - Quantitative detection of yeast and mould in beverages by membrane filtration	E

8 Microbiological and molecular biological analysis of soils, contaminated sites, waste, sewage sludge and sludge, compost and digestates, foodstuffs, food additives, food supplements, samples from primary food production, feedstuffs, cosmetics, indoor air, surfaces and commodities

8.1 Determination of microorganisms using cultural methods **

ISO 4832 2006-02	Microbiology - Horizontal method for the enumeration of coliforms - Colony-count technique	E

ISO 4833-1 2013-09	Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 1: Colony-count technique at 30 degrees C by the pour plate technique (Here: *Also for contaminated sites, waste, foodstuffs, food additives, food supplements, samples from primary food production, indoor air, surfaces and commodities*)	E
ISO 4833-2 2013-09 Correction 1 2014-02	Microbiology of the food chain - Horizontal method for the enumeration of microorganisms - Part 2: Colony count at 30 degrees C by the surface plating technique (Here: *Also for indoor air*)	E
ISO 6579-1 2017-02	Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of Salmonella - Part 1: Detection of Salmonella spp. (Here: *Also for contaminated sites, sewage sludge and sludge, feedstuffs, surfaces and commodities*)	E
ISO 7251 2005-02	Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of presumptive *Escherichia coli* - Most probable number technique (Here: *Also for surfaces and commodities*)	E
ISO 10273 2017-03	Microbiology of the food chain - Horizontal method for the detection of pathogenic *Yersinia enterocolitica* (Modification: *confirmation using MALDI-TOF*)	E
ISO 11290-1 2017-05	Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. - Part 1: Detection method (Modification: *confirmation is carried out using MALDI-TOF; optional: shortened procedure ALOA One Day*.)	E
ISO 11290-2 2017-05	Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. - Part 2: Counting methods (Modification: *confirmation using MALDI-TOF*) (Here: *Also for indoor air*)	E
ISO 16649-1 2018-04	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of β-glucuronidase-positive Escherichia coli - Part 1: Colony-count technique at 44 degrees C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide (Here: *Also for contaminated sites, waste, indoor air and commodities*)	E

ISO 16649-2 2001-04	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of β-glucuronidase-positive Escherichia coli - Part 2: Colony-count technique at 44 °C using 5-bromo-4-chloro-3-indolyl β-D-glucuronic acid	E
ISO 16649-3 2015-05	Microbiology of the food chain - Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli - Part 3: Detection and most probable number technique using 5-bromo-4-chloro-3-indolyl-β-D-glucuronide	E
ISO 21527-1 2008-07	Horizontal method for the enumeration of yeasts and moulds - Colony-count technique - Part 1: Colony count technique in products with water activity greater than 0,95 (Here: *Also for contaminated sites, waste, foodstuffs, food additives, food supplements, samples from primary food production and commodities*)	E
ISO 21527-2 2008-07	Horizontal method for the enumeration of yeasts and moulds - Colony-count technique - Part 2: Colony count technique in products with water activity equal to or less than 0,95 (Here: *Also for contaminated sites, waste, foodstuffs, food additives, food supplements, samples from primary food production and commodities*)	E
ISO 21528-1 2017-06	Microbiology of the food chain - Horizontal method for the detection and enumeration of Enterobacteriaceae - Part 1: Detection of Enterobacteriaceae	E
ISO 21528-2 2017-06	Microbiology of the food chain - Horizontal method for the detection and enumeration of Enterobacteriaceae - Part 2: Colony-count technique (Here: *Also for contaminated sites, waste, sewage sludge and sludge, compost and digestates, feedstuffs, surfaces and commodities*)	E
ISO 21567 2004-11	Microbiology of food and animal feeding stuffs - Horizontal method for the detection of *Shigella spp*. (Modification: *confirmation using MALDI-TOF*)	E
ISO 22964 2017-04	Microbiology of the food chain - Horizontal method for the detection of *Cronobacter spp.* (Modification: *confirmation using MALDI-TOF*)	E

DIN EN ISO 6579-1 2017-07	Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of Salmonella - Part 1: Detection of Salmonella spp. (Modification: *confirmation using MALDI-TOF*)	E
DIN EN ISO 7932 2005-03 Amendment 1 Draft 2018-11	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of presumptive *Bacillus cereus* - Colony-count technique at 30 degrees C (Modification: *confirmation using MALDI-TOF*)	E
DIN EN ISO 7937 2004-11	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of *Clostridium perfringens* - Colony-count technique (Modification: *confirmation using MALDI-TOF*) (Here: *Also for contaminated sites and commodities*)	E
DIN EN ISO 6887-1 2017-07	Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 1: General rules for the preparation of the initial suspension and decimal dilutions	E
DIN EN ISO 6887-2 2017-07	Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 2: Specific rules for the preparation of meat and meat products	E
DIN EN ISO 6887-3 2017-07	Microbiology of food and animal feeding stuffs - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 3: Specific rules for the preparation of fish and fish products	E
DIN EN ISO 6887-4 2017-07	Microbiology of food and animal feeding stuffs - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 4: Specific rules for the preparation of products other than milk and milk products, meat and meat products, fish and fish products	E
DIN EN ISO 6887-5 2011-01	Microbiology of food and animal feeding stuffs - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 5: Specific rules for the preparation of milk and milk products	E

DIN EN ISO 6887-6 2013-06	Microbiology of food and animal feeding stuffs - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 6: Specific rules for the preparation of samples taken at the primary production stage	E
DIN EN ISO 6888-1 2019-06	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 1: Technique using Baird-Parker agar medium (Modification: *confirmation using rabbit plasma/fibrinogen agar medium*) (Here: *Also for surfaces and commodities*)	E
DIN EN ISO 6888-2 2003-12	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 2: Technique using rabbit plasma fibrinogen agar medium	E
DIN EN ISO 6888-3 2005-07	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of coagulase-positive staphylococci (*Staphylococcus aureus* and other species) - Part 3: Detection and MPN technique for low numbers	E
DIN EN ISO 10272-1 2017-09	Microbiology of food and animal feeding stuffs - Horizontal methods for the detection and enumeration of *Campylobacter spp*. - Part 1: Detection method (Modification: *confirmation using MALDI-TOF*)	E
DIN EN ISO 10272-2 2017-09	Microbiology of food and animal feeding stuffs - Horizontal methods for the detection and enumeration of *Campylobacter spp*. - Part 2: Colony-count technique (*modification: confirmation using MALDI-TOF*)	E
DIN EN ISO 13720 2010-12	Meat and meat products - Enumeration of presumptive *Pseudomonas spp.* (Here: *Also for foodstuffs, food additives, food supplements, samples from primary food production, surfaces and commodities*)	E
DIN EN ISO 21871 2006-04	Microbiology of food and animal feeding stuffs - Horizontal method for the determination of low numbers of presumptive *Bacillus cereus* - Most probable number technique and detection method (Modification: *confirmation using MALDI-TOF*)	E

DIN ISO 16000-17 2010-06	Indoor air - Part 17: Detection and enumeration of moulds - Culture-based method	E
DIN 10102 1988-06	Microbiological analysis of meat and meat products; detection of clostridium botulinum and botulinum toxin (Modification: *animal testing is replaced by molecular biological detection of toxin gene.*)	E
DIN 10103 1993-08	Microbiological analysis of meat and meat products; determination of mesophilic sulphite reducing clostridia; method with poured plates (reference method)	E
DIN 10106 2017-04	Microbiological analysis of meat and meat products; determination of *Enterococcus faecalis* and *Enterococcus faecium*; spatula method (reference method)	E
DIN 10109 2016-05	Microbiological analysis of meat and meat products - Determination of aerobic grown lactic acid bacteria - Spatula method	E
DIN 10113-1 1997-07	Determination of surface colony count on fitment and utensils in food areas - Part 1: Quantitative swab method	E
DIN 10113-2 1997-07	Determination of surface colony count on fitment and utensils in food areas - Part 2: Semiquantitative swab method (Here: *Also for other surfaces*)	E
DIN 10113-3 1997-07	Determination of surface colony count on fitment and utensils in food areas - Part 3: Semiquantitative method with culture media laminated taking up equipment (squeeze method) (Here: *Also for other surfaces*)	E
Nordisk Metokommitté för Livsmedel. NMKL No. 71, 5. Ed., 1999	Detection of *Salmonella* spp. in foodstuffs (Here: *Also for surfaces*)	E
ALOA® One Day Certificate-No.: AES 10/03-09/00	Validated for the detection of Listeria spp. and Listeria monocytogenes. Reference method ISO 11290-1. (Modification: *confirmation with RAPID'L.Mono, AFNOR validated*) (Here: *Also for foodstuffs, food additives, food supplements, samples from primary food production and surfaces*)	E

Bio-indicator SIMICON GSA Vers. 2.0 2017-04	Bio-indicator SIMICON GSA for microbiological validation and routine control of textile washing systems	E
Bio-indicator SIMICON GSA Vers. 2.0 2017-04	Bio-indicator SIMICON GSA for microbiological validation and routine control of cleaning and disinfecting processes of dishwashers	E
MP-00472-DE 2019-02	Determination of surface colony count with squeeze systems (paddles/dipslipes) for total bacterial count, Enterobacteriaceae, yeasts, mould, coliforms	E
MP-00625-DE 2019-04	Microbiological analysis of surfaces using swabs for listeria	E
MP-00629-DE 2019-04	Microbiological analysis of surfaces using swab for total bacterial count, Enterobacteriaceae, yeast, mould, E. coli, coliforms	E
MP-00565-DE 2019-04	Microbiological analysis of surfaces using swabs for salmonella	E
MP-00637-DE 2019-04	Horizontal method - Detection of multiresistant Staphylococcus aureus (MRSA) by enrichment in samples from primary food production, surfaces and commodities	E
MP-00566-DE 2019-02	Horizontal method - Detection and confirmation of extended spectrum β-lactamases bacteria (ESBL) by enrichment in foodstuffs, food additives, food supplements and samples from primary food production	E
MP-00592-DE 2019-02	Microbiological, qualitative analysis of carcase surfaces and surfaces using scratch sponges for salmonella and listeria	E

8.2 Identification of microorganisms using MALDI-TOF **)

MP-00577-DE 2019-02	Horizontal method - Identification of cultured bacteria by MALDI-TOF in foodstuffs, food additives, food supplements, samples from primary food production, feedstuffs, indoor air, surfaces and commodities	E

MP-01000-DE 2019-04	Horizontal method - identification of moulds by MALDI-TOF and/or microscopy in contaminated sites, waste, foodstuffs, food additives, food supplements, samples from primary food production, feedstuffs, indoor air, surfaces and commodities (Here: *Only MALDI-TOF*)	E

8.3 Identification of microorganisms using microscopy

MP-01000-DE 2019-04	Horizontal method - identification of moulds by MALDI-TOF and/or microscopy in contaminated sites, waste, foodstuffs, food additives, food supplements, samples from primary food production, feedstuffs, indoor air, surfaces and commodities (Here: Only *microscopy*)	E

8.4 Molecular biological analysis using real-time PCR **

DIN CEN ISO/TS 15216-2 DIN SPEC 10051-2 2014-09	Microbiology of food and animal feed - Horizontal method for determination of hepatitis A virus and norovirus in food using real-time RT-PCR - Part 2: Method for qualitative detection	E
DIN 10135 2013-05	Microbiology of food and animal feeding stuffs - Polymerase chain reaction (PCR) for the detection of food-borne pathogens - Method for the detection of salmonella	E
MP-00536-DE 2019-02	Horizontal method - Detection and confirmation of *Listeria monocytogenes* by real-time polymerase chain reaction in foodstuffs, food additives, food supplements and samples from primary food production	E
MP-00544-DE 2019-02	Horizontal method - Detection and confirmation of *Yersina enterocolitica* by real-time polymerase chain reaction in foodstuffs, food additives, food supplements, samples from primary food production and feedstuffs	E
MP-00546-DE 2019-02	Horizontal method - Detection and confirmation of *Shigella spp* . by real-time polymerase chain reaction in foodstuffs, food additives, food supplements and samples from primary food production	E
MP-00547-DE 2019-02	Horizontal method - Detection and confirmation of *Vibrio cholerae* by real-time polymerase chain reaction in foodstuffs, food additives, food supplements and samples from primary food production	E

MP-00999-DE 2019-04	Horizontal method - Detection and confirmation of *Clostridium botulinum* using the toxin genes A, B, C, D, E, F by real-time polymerase chain reaction in compost and digestates, foodstuffs, food additives, food supplements, samples from primary food production and feedstuffs	E
MP-00555-DE 2019-02	Horizontal method -Detection and confirmation of Verotoxin 1 and 2 producing *Escherichia coli* by real-time polymerase chain reaction in foodstuffs, food additives, food supplements, samples from primary food production, feedstuffs and surfaces	E
MP-00559-DE 2019-02	Horizontal method - Detection and confirmation of *Listeria spp.* by real-time polymerase chain reaction in foodstuffs, food additives, food supplements and samples from primary food production	E

9 List of test methods for the specialist module for WATER
Revised: LAWA of 13.11.2015

Section 1: Sampling and general parameters

Parameter	Method	Was	Sur	Raw
Sampling of waste water	**DIN 38402-A 11: 2009-02**	Br, St		
Sampling from running waters	DIN 38402-A 15: 1986-07		Br,E,St	
	DIN 38402-A 15: 2010-04		Br,E,St	
Sampling from aquifers	DIN 38402-A 13: 1985-12			Br,E,St
Sampling from barrages and lakes	DIN 38402-A 12: 1985-06		Br,E,St	
Homogenisation of samples	**DIN 38402-A 30: 1998-07**	Br,St	Br,E,St	
Temperature	DIN 38404-C 4: 1976-12	Br,St	Br,E,St	Br,E,St
pH value	**DIN EN ISO 10523: 2012-04**	Br,St	Br,E,St	Br,E,St
Conductivity (25 °C)	DIN EN 27888: 1993-11 (C 8)	Br,St	Br,E,St	Br,E,St
Odour	DIN EN 1622: 2006-10 (B 3) Annex C	Br,St	Br,E,St	Br,E,St
Colouring	**DIN EN ISO 7887: 1994-12 (C 1) Section 2**	Br,St	Br,E,St	Br,E,St
Turbidity	DIN EN ISO 7027: 2000-04 (C 2)	Br,St	Br,E,St	Br,E,St
Oxygen	DIN EN 25814: 1992-11 (G 22)		Br,E,St	Br,E,St
Redox potential	DIN 38404-C 6: 1984-05			Br,E

Section 2: Photometry, ion chromatography, titrimetry

Parameter	Method	Was	Sur	Raw
UV absorption at 254 nm (SAC 254)	DIN 38404-C 3: 2005-07		Br,E,St	Br,E,St
UV absorption at 436 nm (SAC 436)	DIN EN ISO 7887: 2012-09 (C 1)		Br,E,St	Br,E,St
Ammonium nitrogen	**DIN EN ISO 11732: 2005-05 (E 23)**	Br	Br	Br
	DIN 38406-E 5: 1983-10	☐	☐	☐
	DIN EN ISO 14911: 1999-12 (E 34)		☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)	Br	Br,E	Br,E
Nitrite nitrogen	**DIN EN 26777: 1993-04 (D 10)**	Br	Br, St	Br, St
	DIN EN ISO 10304-1: 2009-07 (D 20)	Br	Br	Br
	DIN EN ISO 13395: 1996-12 (D 28)	☐	☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)	Br	Br,E	Br,E
Nitrate nitrogen	**DIN EN ISO 10304-1: 2009-07 (D 20)**	Br	Br,E	Br,E
	DIN EN ISO 13395: 1996-12 (D 28)	☐	☐	☐
	DIN 38405-D 9: 2011-09	☐	☐	☐
	DIN 38405-D 29: 1994-11		☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)	Br	Br,E	Br,E
Total phosphorus	**DIN EN ISO 6878: 2004-09 (D 11)**	Br	Br,E	Br,E
	DIN EN ISO 15681-1: 2005-05 (D 45)	☐	☐	☐
	DIN EN ISO 15681-2: 2005-05 (D 46)	☐	E	E
Orthophosphate	DIN EN ISO 10304-1: 2009-07 (D 20)		Br,E	Br,E
	DIN EN ISO 6878: 2004-09 (D 11)		Br	Br
	DIN EN ISO 15681-1: 2004-07 (D 45)		☐	☐
	DIN EN ISO 15681-2: 2005-05 (D 46)		☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)		Br,E	Br,E
Fluoride (dissolved)	DIN 38405-D 4, section 1985-07	Br	Br	Br
	DIN EN ISO 10304-1: 2009-07 (D 20)	Br	Br,E	Br,E
Chloride	**DIN EN ISO 10304-1: 2009-07 (D 20)**	Br	Br,E	Br,E
	DIN EN ISO 15682: 2002-01 (D 31)	☐	☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)	Br	Br,E	Br,E
	DIN EN ISO 10304-4: 1999-07 (D 25)			☐
	DIN 38405-D 1: 1985-12	☐	☐	☐
Sulphate	**DIN EN ISO 10304-1: 2009-07 (D 20)**	Br	Br,E	Br,E
	DIN 38405-D 5: 1985-01	☐	☐	☐
	DIN ISO 15923-1: 2014-07 (D 49)	Br	Br,E	Br,E

Parameter	Method	Was	Sur	Raw
Cyanide (readily liberated)	**DIN 38405-D 13-2: 1981-02**	Br	Br	Br
	DIN EN ISO 14403-1: 2012-10 (D 2)	☐	☐	☐
	DIN EN ISO 14403-2: 2012-10 (D 3)	Br	Br,E	Br,E
	DIN 38405-D 7: 2002-04		☐	☐
Cyanide (total)	**DIN 38405-D 13-2: 1981-02**	Br	Br	Br
	DIN EN ISO 14403-1: 2012-10 (D 2)	☐	☐	☐
	DIN EN ISO 14403-2: 2012-10 (D 3)	Br	Br,E	Br,E
	DIN 38405-D 7: 2002-04		☐	☐
Chromium(VI)	**DIN 38405-D 24: 1987-05**	Br	Br	Br
	DIN EN ISO 10304-3: 1997-11 (D 22), Section 6 (dissolved chromate)	Br	Br	Br
	DIN EN ISO 23913: 2009-09 (D 41)	☐	☐	☐
	DIN EN ISO 18412: 2007-02 (D 40)			E
Sulphide (readily liberated)	**DIN 38405-D 27: 1992-07**	Br	Br,E	Br,E

Section 3: Elemental analysis

Parameter	Method	Was	Sur	Raw
Aluminium	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN EN ISO 12020: 2000-05 (E 25)	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
Arsenic	**DIN EN ISO 11969: 1996-11 (D 18)**	☐	☐	☐
	DIN EN ISO 11885: 2009-09 (E 22)	Br		
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
	DIN 38405-D 35: 2004-09	☐	☐	☐
Lead	**DIN EN ISO 11885: 2009-09 (E 22)**	Br		
	DIN 38406-E 6: 1998-07	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
Cadmium	**DIN EN ISO 11885: 2009-09 (E 22)**	Br		
	DIN EN ISO 5961: 1995-05 (E 19)	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02(E 4)	☐	☐	☐

Parameter	Method	Was	Sur	Raw
Calcium	DIN EN ISO 11885: 2009-09 (E 22)		Br	Br
	DIN 38406-E 3: 2002-03		☐	☐
	DIN EN ISO 7980: 2000-07 (E 3a)		☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)		Br,E	Br,E
	DIN EN ISO 14911: 1999-12 (E 34)		☐	☐
Chromium	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN EN 1233: 1996-08 (E 10)	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
Iron	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN 38406-E 32: 2000-05	☐	☐	☐
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
	DIN 38406-E 1: 1983-05		Br	Br
	DIN EN ISO 17294-2: 2005-02 (E29), with collision cell	Br	Br,E	Br,E
Potassium	DIN 38406-E 13: 1992-07		☐	☐
	DIN EN ISO 11885: 2009-09 (E 22)		Br	Br
	DIN EN ISO 17294-2: 2005-02 (E 29)		Br,E	Br,E
	DIN EN ISO 14911: 1999-12 (E 34)		☐	☐
Copper	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN 38406-E 7: 1991-09	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
Manganese	DIN EN ISO 11885: 2009-09 (E 22)			Br
	DIN EN ISO 17294-2: 2005-02 (E 29)			Br,E
	DIN 38406-E 33: 2000-06			☐
	DIN EN ISO 15586: 2004-02 (E 4)			☐
	DIN EN ISO 14911: 1999-12 (E 34)			☐
Sodium	DIN 38406-E 14: 1992-07		☐	☐
	DIN EN ISO 11885: 2009-09 (E 22)		Br	Br
	DIN EN ISO 17294-2: 2005-02 (E 29)		Br,E	Br,E
	DIN EN ISO 14911: 1999-12 (E 34)		☐	☐
Nickel	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN 38406-E 11: 1991-09	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐

Parameter	Method	Was	Sur	Raw
Mercury	**DIN EN 1483: 2007-07 (E 12)**	Br	Br	Br
	DIN EN ISO17852: 2008-04 (E 35)	Br	Br	Br
	DIN EN ISO 12846: 2012-08 (E 12)	Br	Br,E	Br,E
Zinc	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN 38406-E 8: 2004-10	☐	☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
	DIN EN ISO 15586: 2004-02 (E 4)	☐	☐	☐
Boron	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br,E	Br,E
Magnesium	DIN EN ISO 11885: 2009-09 (E 22)		Br	Br
	DIN 38406-E 3: 2002-03		☐	☐
	DIN EN ISO 7980: 2000-07 (E 3a)		☐	☐
	DIN EN ISO 17294-2: 2005-02 (E 29)		Br,E	Br,E
	DIN EN ISO 14911: 1999-12 (E 34)		☐	☐
Phosphorus (phosphorus compounds in original sample as phosphorus)	**DIN EN ISO 11885: 2009-09 (E 22)**	Br	Br	Br
	DIN EN ISO 17294-2: 2005-02 (E 29)	Br	Br	Br

Section 4/5: Group and sum parameters

Parameter	Method	Was	Sur	Raw
Biological oxygen demand (BOD_5)	**DIN EN 1899-1: 1998-05 (H 51)**	Br		
	DIN EN 1899-2: 1998-05 (H 52)		Br	
Chemical oxygen demand (COD)	**DIN 38409-H 41: 1980-12**	Br		
	DIN 38409-H 44: 1992-05		Br	
	DIN ISO 15705: 2003-01 (H 45)		☐	
Phenol index	**DIN 38409-H 16-2: 1984-06**	☐	☐	☐
	DIN 38409-H 16-1: 1984-06		☐	☐
	DIN EN ISO 14402: 1999-12 (H 37) Method as per section 4	Br	Br	Br
Filterable solids	**DIN EN 872: 2005-04 (H 33)**	Br	Br,E	
	DIN 38409-H 2-3: 1987-03		Br	
Acid and base capacity	DIN 38409-H 7: 2005-12		Br,E,St	Br,E,St
Total organic carbon (TOC)	**DIN EN 1484: 1997-08 (H 3)**	Br	Br,E	
Dissolved organic carbon (DOC)	DIN EN 1484: 1997-08 (H 3)			Br,E
Total bound nitrogen (TN_b)	**DIN EN 12260: 2003-12 (H 34)**	Br	Br,E	
	DIN EN ISO 11905-1: 1998-08 (H 36)	☐	☐	

Parameter	Method	Was	Sur	Raw
Adsorbable organic halogens (AOX)	**DIN EN ISO 9562: 2005-02 (H 14)**	Br	Br	Br
	DIN 38409-H 22: 2001-02		☐	☐

Section 6: Gas chromatographic methods

Parameter	Method	Was	Sur	Raw
Volatile halogenated hydrocarbons (VOC)	**DIN EN ISO 10301: 1997-08 (F 4)***	Br	Br	Br
	DIN 38407-F 43: 2014-10	Br	Br,E	Br,E
	DIN EN ISO 15680: 2004-04 (F 19)	☐	☐	☐
Benzene and derivatives (BTEX)	**DIN 38407-F 9: 1991-05***	Br	Br	Br
	DIN 38407-F 43: 2014-10	Br	Br,E	Br,E
	DIN EN ISO 15680: 2004-04 (F 19)	☐	☐	☐
Organochlorine insecticides (OCP)	DIN 38407-F 2: 1993-02*		Br	Br
	DIN EN ISO 6468: 1997-02 (F 1)*		Br	Br
	DIN EN 38407-F 37: 2013-11		Br,E	Br,E
Polychlorinated biphenyls (PCB)	DIN EN ISO 6468: 1997-02 (F 1)*		Br	Br
	DIN 38407-F 2: 1993-02*		Br	Br
	DIN 38407-F 3: 1998-07		Br,E	Br,E
Mono, dichlorobenzenes	DIN EN ISO 15680: 2004-04 (F 19)		☐	☐
	DIN 38407-F 43: 2014-10		Br,E	Br,E
Tri to hexachlorobenzene	DIN EN ISO 6468: 1997-02 (F 1)*	Br	Br	Br
	DIN 38407-F 2: 1993-02*	Br	Br	Br
	DIN 38407-F 43: 2014-10	☐	☐	☐
	DIN EN 38407-F 37: 2013-11	Br	Br,E	Br,E
Chlorophenols	DIN EN 12673: 1999-05 (F 15)		Br,E	Br,E
Organophosphorus and organic nitrogen compounds	DIN EN ISO 10695: 2000-11 (F 6) *		Br,E	Br,E
Polycyclic aromatic hydrocarbons (PAH)**	DIN 38407-F 39: 2011-09	Br	Br,E	Br,E
	DIN ISO 28540: 2014-05 (F 40)	☐	☐	☐
Hydrocarbon index	**DIN EN ISO 9377-2: 2001-07 (H 53)**	Br	Br	Br

* *Mass spectrometric detection allowed*

** *Section 6 is also fully met when PAHs are analysed using a method in section 7*

Section 7: HPLC methods

Parameter	Method	Was	Sur	Raw
Polycyclic aromatic hydrocarbon substances (PAHs)**	**DIN EN ISO 17993: 2004-03 (F 18)**	☐	☐	☐
Plant protection products and pesticides (PPP) (The methods should be applied according to substance-specific requirements.)	DIN EN ISO 11369: 1997-11 (F 12) *		Br,E	Br,E
	DIN 38407-F 35: 2010-10		Br,E	Br,E
	DIN 38407-F 36: 2014-09		Br,E	Br,E

* *Mass spectrometric detection allowed*

** *Section 7 is also fully met when PAHs are analysed using a method in section 6*

Section 8: Microbiological methods

Parameter	Method	Was	Sur	Raw
Colony count	DIN EN ISO 6222: 1999-07 (K 5)		E,St	E,St
Total coliform count	DIN EN ISO 9308-2: 2014-09 (K 6-1) in conjunction with DIN EN ISO 9308-1: 2014-09 (K 12)		E,St E,St	E,St E,St
Faecal coliform count	DIN EN ISO 9308-1: 2001-07 (K 12)		E, St	E, St
	DIN EN ISO 9308-3: 1999-07 (K 13)		E,St	E,St
Intestinal enterococci	DIN EN ISO 7899-2: 2000-11 (K 15)		E,St	E,St
	DIN EN ISO 7899-1: 1999-07 (K 14)		E,St	E,St

Section 9.1: Biological methods, bio-assays (part 1)

not used

Section 9.2: Biological methods, bio-assays (part 2)

Parameter	Method	Was	Sur	Raw
Saprobic index	DIN 38410-M 1: 2004-10		☐	
Chlorophyll a	DIN 38412-L 16: 1985-12		E	
Phaeophytin	DIN 38416-L 16: 1985-12		E	
Daphnia test	**DIN 38412-L 30: 1989-03**	☐		
Algae test	**DIN 38412-L 33: 1991-03**	☐		
Umu test	**DIN 38415-T 3: 1996-12**	☐		

10 List of test methods for the specialist module for soil and contaminated sites
Revised: LABO dated 16.08.2012

Test area 1: Solids
Section 1.1: Sampling and on-site examination

Test parameters	Methods/notes	Method	
Sampling plans		BBodSchV DIN ISO 10381-1: 2003 DIN ISO 10381-5: 2007	☐
Sampling for the analysis of suspected contaminated sites and contaminated sites	Hand drilling, sampling on excavations, small percussion bore holes 50 - 80 mm, samples in undisturbed bedding	DIN ISO 10381-2: 2003 DIN EN ISO 22475-1: 2007	☐
	Stockpile sampling	LAGA PN 98: 2001	
Sampling after soil digestion for analysis of suspected contaminated sites and contaminated sites for volatile pollutants	The extraction agent must be present in the sample vessels prior to sampling	Handbuch Altlasten, Volume 7, Part 4, HLUG 2000	Br
Sampling for investigation of natural, near-natural and cultivated sites		DIN ISO 10381-4: 2004 VDLUFA Methodenhandbuch Volume 1, A1	☐
Sampling of sediments		DIN 38414-11: 1987	☐
Sampling of suspended solids - **optional**		DIN 38402-24: 2007	☐
Sample description		Arbeitshilfe für die Bodenansprache im vor- und nachsorgenden Bodenschutz, excerpt from KA5, 2009 Bodenkundliche Kartieranleitung 5th Edition (KA5): 2005	☐
	Series of standards on geotechnical investigation and testing	DIN EN ISO 14688-1: 2011 DIN EN ISO 14689-1: 2011 DIN EN ISO 22475-1: 2007	☐
Determination of soil texture	Feel test in the field	Arbeitshilfe für die Bodenansprache im vor- und nachsorgenden Bodenschutz, excerpt from KA5, 2009 Bodenkundliche Kartieranleitung 5th Edition (KA5): 2005 DIN 19682-2: 2007	☐

Test parameters	Methods/notes	Method	
Sample storage, sample pretreatment in the field, sample transport		DIN 19747: 2009 DIN ISO 10381-1: 2003 DIN ISO 10831-2: 2003 DIN ISO 18512: 2009	☐
	Overlay of soil with solvent in the field for analysis for volatile pollutants	DIN ISO 22155: 2006	

Section 1.2: Laboratory - Analysis of inorganic parameters

Basic parameters and sample preparation			
Test parameters	**Methods/notes**	**Method**	
Sample preparation and processing		DIN 19747: 2009	Br
Dry matter		DIN ISO 11465: 1996	Br
		DIN EN 14346: 2007	Br
Organic carbon and total carbon after dry combustion (TOC)	Air-dried soil samples	DIN ISO 10694: 1996	Br
		DIN EN 13137: 2001	Br
		DIN EN 15936: 2012	Br
pH value ($CaCl_2$)		DIN ISO 10390: 2005	Br
Gross density - **optional**		DIN ISO 11272: 2001	☐
Particle size distribution - **optional**	Pipette analysis	DIN ISO 11277: 2002	☐
	Hydrometer method	DIN 18123: 2011 with LAGA PN98	☐

Analysis of inorganic parameters			
Test parameters	**Methods/notes**	**Method**	
Aqua regia extract	Thermal, open vessel	DIN ISO 11466: 1997	☐
	Microwave digestion	DIN EN 13657: 2003	Br
Ammonium nitrate extract		DIN 19730: 2009	Br
Alkaline digestion method - **optional**	Metaborate fusion for chromium(VI) analysis	DIN EN 15192: 2007	Br
Extraction for determination of thallium - **optional**	HNO_3, H_2O_2	DIN ISO 20279: 2006	Br
Arsenic (As) Antimony (Sb)	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
	ET-AAS or hydride AAS	DIN ISO 20280: 2010	☐

Analysis of inorganic parameters			
Test parameters	**Methods/notes**	**Method**	
Cadmium (Cd) Chromium (Cr), total Cobalt (Co) Copper (Cu) Nickel (Ni) Lead (Pb) Zinc (Zn)	ET-AAS	DIN ISO 11047: 2003	☐
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Mercury (Hg)	AAS	DIN EN 1483: 2007	Br
	Cold vapour AAS or cold vapour AFS	DIN ISO 16772: 2005	Br
Cyanide		DIN ISO 17380: 2011	Br
		DIN ISO 11262: 2012	☐
Chromium(VI) - **optional**	IC with photometric detection	DIN EN 15192: 2007	Br
Molybdenum (Mo) Vanadium (V) - **optional**	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Selenium (Se) - **optional**	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
	ET-AAS or hydride AAS	DIN ISO 20280: 2010	☐
Thallium (Tl) from the HNO_3/H_2O_2-extract - **optional**	ET-AAS	DIN ISO 20279: 2006	☐
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Uranium (U) Tungsten (W) - **optional**	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br

Section 1.3: Laboratory - Analysis of organic parameters

Basic parameters and sample preparation			
Test parameters	**Methods/notes**	**Method**	
Sample preparation and processing		DIN 19747: 2009	Br
Dry matter		DIN ISO 11465: 1996	Br
		DIN EN 14346: 2007	Br
Organic carbon and total carbon after dry combustion (TOC)	Air-dried soil samples	DIN ISO 10694: 1996	Br
		DIN EN 13137: 2001	Br
		DIN EN 15936: 2012	Br
pH value ($CaCl_2$)		DIN ISO 10390: 2005	Br
Gross density - **optional**		DIN ISO 11272: 2001	☐
Particle size distribution - **optional**	Pipette analysis	DIN ISO 11277: 2002	☐
	Hydrometer method	DIN 18123: 2011 with LAGA PN98	☐

Analysis of organic parameters			
Test parameters	**Methods/notes**	**Method**	
Polycyclic aromatic hydrocarbons (PAH) 16 PAH (EPA)	GC-MS	DIN ISO 18287: 2006	Br
	HPLC-UV/F Acenaphthylene cannot be determined by fluorescence detector	DIN ISO 13877: 2000	☐
		DIN 38414-23: 2002	Br
Hexachlorobenzene	GC - ECD, GC - MS	DIN ISO 10382: 2006	Br
Pentachlorophenol	GC - ECD, GC - MS	DIN ISO 14154: 2005	Br
Aldrin, DDT, HCH mixture	GC - ECD, GC - MS	DIN ISO 10382: 2003	Br
		DIN EN 15308: 2008	☐
Polychlorinated biphenyls (PCB)	GC-ECD, GC-MS Extraction with acetone/petroleum ether or Soxhlet extraction The type of summation must be indicated (PCB6/PCB7)	DIN ISO 10382: 2003	Br
		DIN EN 15308: 2008	Br
		DIN 38414-20: 1996	Br
Typical explosive compounds (HPLC) - **optional**	Extraction with methanol or acetonitrile and quantification using HPLC-UV/DAD	E DIN ISO 11916-1: 2011	Br
Typical explosive compounds (GC) - **optional**	Extraction with methanol. Dissolution in toluene and quantification using GC-ECD or GC-MS	E DIN ISO 11916-2: 2011	Br
Petroleum hydrocarbons (C_{10}-C_{40}) - **optional**	GC-FID	DIN ISO 16703: 2005	Br
		LAGA KW/04: 2009	Br
BTEX aromatic compounds, VOC - **optional**	Headspace, GC	DIN ISO 22155: 2006	Br

Test area 1.4: Analysis - Dioxins and furans

not used

Test area 2: Eluates and percolates, aqueous media

Section 2.1: Sampling and on-site examination

Sampling			
Test parameters	**Methods/notes**	**Method**	
Sampling programmes and sampling techniques		DIN EN ISO 5667-1: 2007	Br

Sampling			
Test parameters	**Methods/notes**	**Method**	
Sampling of groundwater	AQS Information Sheet P 8/2: 1996	ISO 5667-11: 2009 DIN 38402-13: 1985 DVGW Work Sheet S W 112: 2011	Br
Sampling of leachate		No standardised method currently available Where applicable E-DWA-M 905: 2008	☐
Sampling of surface water (running waters)	AQS Information Sheet P 8/3: 1998	DIN 38402-15: 2010	Br
Sampling of surface water (barrages and lakes)		DIN 38402-12: 1985	Br

On-site testing			
Test parameters	**Methods/notes**	**Method**	
Colouring		DIN EN ISO 7887: 2012	Br
Turbidity		DIN EN ISO 7027: 2000	Br
Odour		DEV B1/2 1971	Br
Temperature		DIN 38404-4: 1976	Br
pH value		DIN EN ISO 10523: 2012	Br
Oxygen content		DIN EN 25814: 1992	Br
Electrical conductivity		DIN EN 27888: 1993	Br
Redox potential		DIN 38404-6: 1984	Br
Sample storage, sample pretreatment, sample transport		DIN EN ISO 5667-3: 2004	Br

Section 2.2: Laboratory - Analysis of eluates/percolates for inorganic parameters

Eluates/percolates			
Test parameters	**Methods/notes**	**Method**	
Batch test - Elution of inorganic substances		DIN 19529: 2009	Br
Batch test - Elution of organic substances		DIN 19527: 2012	Br
Batch test - Elution of inorganic substances - **optional**		DIN EN 12457-4: 2003	Br
Percolation method for organic and inorganic substances - **optional**		DIN 19528: 2009	Br

Eluates/percolates			
Test parameters	**Methods/notes**	**Method**	
Examination for absorption availability - **optional**		DIN 19738: 2004	☐

Analysis - Inorganic parameters			
Test parameters	**Methods/notes**	**Method**	
Antimony (Sb) Arsenic (As)	ICP-OES	DIN EN ISO 11885: 2009	Br
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
	ET-AAS or hydride AAS	DIN ISO 20280: 2010	☐
Lead (Pb) Cadmium (Cd) Chromium (Cr), total Cobalt (Co) Copper (Cu) Molybdenum (Mo) Nickel (Ni) Zinc (Zn)	ET-AAS	DIN EN ISO 15586: 2004	☐
	ICP-OES	DIN EN ISO 11885: 2009	Br
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Mercury (Hg)	AAS	DIN EN 1483: 2007	Br
	Cold vapour AAS or cold vapour AFS	DIN ISO 16772: 2005	Br
Cyanide (CN-), total Cyanide, readily liberated	Spectrophotometry	DIN EN ISO 14403: 2002	Br
		DIN 38405-13: 2011	☐
		DIN EN ISO 17380: 2011	Br
Fluoride, chloride, sulphate	Ion chromatography	DIN EN ISO 10304-1:2009	Br
	Individual method	DIN 38405-1, -4, -5: 1985	☐
Vanadium (V) - **optional**	ET-AAS	DIN EN ISO 15586: 2004	☐
	ICP-OES	DIN EN ISO 11885: 2009	Br
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Uranium (U) -**optional**	ICP-MS	DIN EN ISO 17294-2: 2005	Br

Analysis - Inorganic parameters			
Test parameters	**Methods/notes**	**Method**	
Tin (Sn) Thallium (Tl) Tungsten (W) - **optional**	ICP-OES	DIN EN ISO 11885: 2009	Br
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
Selenium (Se) - **optional**	ET-AAS	DIN EN ISO 15586: 2004	☐
	ICP-OES	DIN EN ISO 11885: 2009	Br
	ICP-OES	DIN ISO 22036: 2009	Br
	ICP-MS	DIN EN ISO 17294-2: 2005	Br
	ET-AAS or hydride AAS	DIN ISO 20280: 2010	☐
Chromium (Cr VI)	Spectrophotometry	DIN 38405-24: 1987	Br
	Ion chromatography	DIN EN ISO 10304-3: 1997	Br

Section 2.3: Laboratory - Analysis of eluates/percolates for organic parameters

Eluates/percolates			
Test parameters	**Methods/notes**	**Method**	
Batch test - Elution of inorganic substances		DIN 19529: 2009	Br
Batch test - Elution of organic substances		DIN 19527: 2012	Br
Batch test - Elution of inorganic substances - **optional**		DIN EN 12457-4: 2003	Br
Percolation method for organic and inorganic substances - **optional**		DIN 19528: 2009	Br
Examination for absorption availability - **optional**		DIN 19738: 2004	☐

Analysis - Organic parameters			
Test parameters	**Methods/notes**	**Method**	
Aromatics (BTEX)	Purge + trap / desorption, GC-MS	DIN EN ISO 15680: 2004	☐
	Liquid extraction and headspace, GC	DIN 38407-9: 1991	Br
	Headspace-SPME, GC-MS	DIN 38407-41: 2011	☐

Analysis - Organic parameters			
Test parameters	**Methods/notes**	**Method**	
Volatile halogenated hydrocarbons (VOC)	Purge + trap / desorption, GC-MS	DIN EN ISO 15680: 2004	☐
	Liquid extraction and headspace, GC	DIN EN ISO 10301: 1997	Br
	Headspace-SPME, GC-MS	DIN 38407-41: 2011	☐
Aldrin	GC-ECD, GC-MS	DIN EN ISO 6468: 1997	Br
		DIN 38407-2: 1993	Br
Dichlorodiphenyltrichloroethane (DDT)	GC-ECD, GC-MS	DIN EN ISO 6468: 1997	Br
		DIN 38407-2: 1993	Br
Chlorophenols	GC-ECD, GC-MS	DIN EN 12673: 1999	Br
Chlorobenzenes (Cl3-Cl6)	GC-ECD, GC-MS	DIN 38407-2: 1993	Br
	Liquid extraction, GC-ECD, GC-MS	DIN EN ISO 6468: 1997	Br
Chlorobenzenes (Cl1-Cl3)	Liquid extraction and headspace, GC-ECD, MS where applicable	DIN EN ISO 10301: 1997	Br
Polychlorinated biphenyls (PCB)	GC-ECD, GC-MS Type of summation (PCB6 / PCB7) must be specified	DIN 38407-2: 1993	Br
		DIN 38407-3: 1998	Br
16 PAH (EPA)	HPLC-F	DIN EN ISO 17993: 2004	☐
	GC-MS	DIN 38407-39: 2011	Br
Naphthalene	GC-FID, GC-MS	DIN EN ISO 15680: 2004	☐
		DIN 38407-9: 1991	Br
Petroleum hydrocarbons (MKW, C_{10}-C_{40})	GC-FID	DIN EN ISO 9377-2: 2001	Br
Typical explosive compounds (HPLC) - **optional**	HPLC / UV detection	DIN EN ISO 22478: 2006	Br
Typical explosive compounds (GC) - **optional**	Determination of selected nitroaromatic compounds using GC	DIN 38407-17: 1999	Br
Phenols - **optional**	GC-ECD, GC-MS	ISO 8165-2: 1999	☐
		DIN EN 12673: 1999	Br

Test area 3 - Soil gas, landfill gas

Section 3.1: Sampling and on-site examination

not used

Section 3.2: Laboratory - Analysis of soil gas, landfill gas

Test parameters	Methods/notes	Method	
Aromatics (BTEX)		VDI 3865 Sheet 3: 1998	Br
		VDI 3865 Sheet 4: 2000	Br
Volatile halogenated hydrocarbons (VOC)		VDI 3865 Sheet 3: 1998	Br
		VDI 3865 Sheet 4: 2000	Br

11 List of test methods for the specialist module for waste
Revised: LAGA, May 2018

Test area 1: Sewage sludge

	Sections / Parameters	**Basis /** Methods		**Locations**
		AbfKlärV		
1.1	**Sampling and sample preparation**	**Section 32 (3) and (4) AbfKlärV**		
a)	**Sampling**	**DIN EN ISO 5667-13 (08.11) and DIN 19698-1 (05.14)**	☒	Br
b)	**Sample preparation**	**DIN 19747 (07.09)**	☒	Br

1.2	**Heavy metals and chromium VI**[1]	**Section 5 (1) (1) AbfKlärV**		
	Heavy metals			
	Aqua regia digestion	**DIN EN 16174 (11.12)**	☒	Br
		DIN EN 16174 Method A (11.12)	☐	
		DIN EN 13346 Method A (04.01)	☐	

[1] By way of derogation from Part III No. 1, proof of competence for section 1.2 may also be provided without chromium VI.

	Arsenic, lead, cadmium, chromium, copper, nickel, zinc, iron (from aqua regia digestion)	**DIN EN ISO 11885 (09.09)**	☒	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294-2 (01.17)	☒	
		DIN EN 16170 (01.17)	☒	
		DIN EN 16171 (01.17)	☒	
		CEN/TS 16172; DIN SPEC 91258 (04.13)	☐	
		DIN ISO 22036 (06.09)	☒	
	Thallium (from aqua regia digestion)	**DIN EN ISO 11885 (09.09)**	☒	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294-2 (01.17)	☒	
		DIN 38406-26 (07.97)	☐	
		DIN EN 16170 (01.17)	☒	
		DIN EN 16171 (01.17)	☒	
		CEN/TS 16172; DIN SPEC 91258 (04.13)	☐	
		DIN ISO 22036 (06.09)	☒	
	Mercury (from aqua regia digestion)	**DIN EN ISO 17852 (04.08)**	☒	
		DIN EN 16175-1 (12.16)	☒	
		DIN EN 16175-2 (12.16)	☒	
		DIN EN 16171 (01.17)	☒	
		DIN EN ISO 12846 (08.12)	☒	
	Chromium VI (from alkaline hot extract)[2]	**DIN EN 16318 (07.16)**	☒	
		DIN EN 15192 (02.07)	☒	
		DIN 10304-3 (11.97)[3]	☒	
		DIN EN ISO 17294-2 (01.17)[5]	☐	

[2] For the alkaline hot extract, the DIN EN 16318 or DIN EN 15192 methods must be used.

[3] Instead of post-column derivatisation with 1,5-diphenylcarbonohydrazide, determination of Cr(IV) after separation by ion chromatography in accordance with DIN 10304-3 can also be carried out by coupling with ICP-MS detection based on DIN EN ISO 17294-2.

1.3	**Adsorbed organic bound halogens**	**Section 5 (1) (2) AbfKlärV**		
	AOX (from dry residue)	**DIN 38414-18 (11.89)**	☐	
		DIN EN 16166 (11.12)	☒	

1.4	**Physical parameters, nutrients**	**Section 5 (1) (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 Methodenbuch Volume II.2, Method 4.5.1**	☒	Br
	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)	☒	Br
	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)	☒	

Section 1.5 - Persistent organic pollutants - Polychlorinated biphenyls (PCB)

not used

Section 1.6 - Polychlorinated dibenzodioxins and furans (PCDD/PCDF) and dioxin-like polychlorinated biphenyls (dl-PCB)

not used

1.7	Benzo(a)pyrene (BaP)	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)	☒	

Test area 2: Base

Section 2.1 - Sampling and sample preparation

not used

Section 2.2 - Heavy metals

not used

Section 2.3 - Physical parameters, phosphate

not used

	Organic substances	Section 4 (2) AbfKlärV		
2.4	Polychlorinated biphenyls (PCB)	DIN ISO 10382 (05.03)	☐	
		DIN EN 16167 (11.12)	☒	

2.5	Benzo(a)pyrene (BaP)	DIN ISO 18287 (05.06)	☒	
		DIN CEN TS 16181; DIN SPEC 91243 (12.13)	☐	
		DIN 38414-23 (02.02)	☒	

Test area 3: Biowaste

Sections 3.1 to 3.3

not used

	Sections/ Parameter	Basis/ Method		Locations
3.4	**Process inspection**	**Section 3 (4) BioAbfV**		
	Determination of minimum holding time			
	Tracer test with spores of Bacillus globigii	**Annex 2 BioAbfV**	☐	
	Tracer test with lithium	**Annex 2 BioAbfV**	☐	
	Disease hygiene			
	Salmonella senftenberg W 775 (H2S-neg.)	**Annex 2 BioAbfV**	☒	E
	Phyto-hygiene			
	Plasmodiophora brassicae (clubroot)	**Annex 2 BioAbfV**	☐	
	Tomato seeds	**Annex 2 BioAbfV**	☐	
	Tobacco mosaic virus (TMV)	**Annex 2 BioAbfV**	☐	

3.5	**Testing of sanitised biowaste**	**Section 3 (4) BioAbfV**		
	Disease hygiene			
	Salmonella	**Annex 2 BioAbfV**	☒	E
	Phyto-hygiene			
	Viable seeds and parts of plants capable of producing shoots	**Annex 2 BioAbfV**	☐	

Test area 4: Waste oil, insulating liquid

not used

Test area 5: Landfill waste

	Sections/ Parameter	Basis/ Method		Locations
		Section 6 (2), Section 8 (1), (3) and (5) DepV		
5.1	**Sampling**	**LAGA PN 98 (12.01)**	☒	

5.2	**Determination of total content in solid**			
	Sample preparation	**DIN 19747 (07.09)**	☒	
	Digestion method (aqua regia)	**DIN EN 13657 (01.03)**	☒	
	Loss on ignition	**DIN EN 15169 (05.07)**	☒	

	TOC (total organic carbon)	**DIN EN 13137 (12.01)**	☒	
	BTEX (benzene and derivatives)	**DIN 38407-F9 (05.91) Handbuch Altlasten HLUG, Volume 7, Methods of analysis, Part 4 (2000)**	☒	Br
		DIN EN ISO 22155 (07.16)	☒	Br
	PCB (polychlorinated biphenyls)	**DIN EN 15308 (05.08)**	☒	
	Petroleum hydrocarbons	**DIN EN 14039 (01.05) in conjunction with LAGA KW/04 (12.09)**	☒	Br
	PAH (polycyclic aromatic hydrocarbons)	**DIN ISO 18287 (05.06)**	☒	
	Density	**DIN 18125-2 (03.11)**	☐	
	Gross calorific value	**DIN EN 15170 (05.09)**	☒	
	Cadmium, chromium, copper, nickel, lead and zinc	**DIN ISO 11047 (05.03)**	☐	
		DIN EN ISO 11885 (09.09)	☒	
		DIN ISO 22036 (06.09)	☒	
	Mercury	**DIN EN 12846 (08.12)* a method incorrectly specified in legislation; DIN EN ISO 12846 (08.12) correct**	☒	Br
		DIN EN ISO 17852 (04.08)	☒	
	Extractable lipophilic substances	**LAGA KW/04 (12.09)**	☒	

5.3	**Determination of contents in eluate**			
	Eluate preparation with liquid/solid ratio 10/1	**DIN EN 12457-4 (01.03)**	☒	Br
	Eluate preparation each with constant pH 4 and 11 / acid neutralisation capacity	**LAGA Guideline EW 98 (2002)**	☒	Br
	Up-flow percolation test	**DIN CEN/TS 14405 (09.04)**	☒	
		DIN 19528 (01.09)	☒	
	pH value of eluate	**DIN 38404-5 (07.09)**	☒	
	DOC	**DIN EN 1484 (08.97)**	☒	
	DOC at a pH between 7.5 and 8	**LAGA Guideline EW 98 p (2002)**	☒	Br

	Phenols	**DIN 38409-16 (06.84)**	☐	
		DIN EN ISO 14402 (12.99)	☒	
		DIN 38407-27 (10.12)	☒	
	Arsenic	**DIN EN ISO 11969 (11.96)**	☐	
		DIN EN ISO 11885 (09.09)	☒	
		DIN ISO 22036 (06.09)	☒	
		DIN EN ISO 15586 (02.04)	☐	
		DIN EN ISO 17294-2 (02.05)	☒	
		DIN EN ISO 17294-2 (01.17)	☒	
	Lead, cadmium, copper, nickel, zinc, chromium	**DIN EN ISO 15586 (02.04)**	☐	
		DIN EN ISO 17294-2 (02.05)	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN ISO 22036 (06.09)	☒	
		DIN EN ISO 17294-2 (01.17)	☒	
	Mercury	**DIN EN ISO 12846 (08.12)**	☒	
		DIN EN ISO 17852 (04.08)	☒	
	Barium, molybdenum, selenium	**DIN ISO 22036 (06.09)**	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 17294-2 (02.05)	☒	
		DIN EN ISO 17294-2 (01.17)	☒	
	Antimony	**DIN ISO 22036 (06.09)**	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 15586 (02.04)	☐	
		DIN 38405-32 (05.00)	☐	
		DIN EN ISO 17294-2 (02.05)	☒	
		DIN EN ISO 17294-2 (01.17)	☒	
	Total dissolved solids	**DIN EN 15216 (01.08)**	☒	
		DIN 38409-1 (01.87)	☒	
		DIN 38409-2 (03.87)	☒	
	Conductivity of eluate	**DIN EN 27888 (11.93)**	☒	
	Determination of dry residue	**DIN EN 14346 (03.07)**	☒	

	Chloride	**DIN EN ISO 10304- 1 (07.09)**	☒	
		DIN 38405-1 (12.85)	☐	
		DIN EN ISO 15682 (01.02)	☐	
	Sulphate	**DIN EN ISO 10304- 1 (07.09)**	☒	
		DIN 38405-5 (01.85)	☐	
	Cyanide, readily liberated	**DIN 38405-13 (04.11)**	☐	
		In waste containing sulphide: **DIN ISO 17380 (05.06)**	☒	Br
		DIN EN ISO 14403- 1 (10.12)	☐	
	Fluoride	**DIN 38405-4 (07.85)**	☒	Br
		DIN EN ISO 10304- 1 (07.09)	☒	Br

5.4	**Biodegradability of the dry residue of the original substance**	**Annex 4 No. 3.3 DepV**		
	Breathability over 4 days (AT_4)	**Annex 4 No. 3.3.1 DepV**	☒	Br
	Gas formation over 21 days (GB_{21})	**Annex 4 No. 3.3.2 DepV**	☐	

Test area 6: Wood waste

	Sections/ Parameter	**Basis/** Method		**Location**
		AltholzV		
6.1	**Sampling and sample preparation**	**Section 6 (6) AltholzV**		
a)	**Sampling**	LAGA PN 98 in conjunction with **Annex IV No. 1.1, AltholzV**	☐	
b)	**Sample preparation**	DIN 19747 (07.09) in conjunction with **Annex IV No. 1.3**	☒	Br
	Preparation of laboratory sample	DIN 19747 (07.09) in conjunction with **DIN 51701- 3 (08.85)**	☒	Br
	Moisture content	**DIN 52183 (11.77)**	☒	Br

6.2	**Heavy metals**	**Annex IV No. 1.4.3 AltholzV**		
	Aqua regia digestion	**E DIN EN 13657 (10.99)**	☐	
		DIN EN 13657 (01.03)	☒	
	Arsenic (from aqua regia digestion)	**DIN EN ISO 11969 (11.96)**	☐	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 22036 (06.09)	☒	
		DIN EN ISO 17294- 2 (01.17)	☒	
	Lead (from aqua regia digestion)	**DIN 38406-6 (07.98)**	☐	
		DIN EN ISO 11885 (04.98)	☐	
		DIN ISO 11047 (05.98)	☐	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294- 2 (01.17	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 22036 (06.09)	☒	
	Cadmium (from aqua regia digestion)	**DIN EN ISO 5961 (05.95)**	☐	
		DIN EN ISO 11885 (04.98)	☐	
		DIN ISO 11047 (06.95)	☐	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294-2 (01.17)	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 22036 (06.09)	☒	
	Chromium (from aqua regia digestion)	**DIN EN 1233 (08.96)**	☐	
		DIN EN ISO 11885 (04.98)	☐	
		DIN ISO 11047 (06.95)	☐	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294-2 (01.17)	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 22036 (06.09)	☒	

	Copper (from aqua regia digestion)	**DIN 38406-7 (09.91)**	☐	
		DIN EN ISO 11885 (04.98)	☐	
		DIN ISO 11047 (06.95)	☐	
		DIN ISO 11047 (05.03)	☐	
		DIN EN ISO 17294-2 (01.17)	☒	
		DIN EN ISO 11885 (09.09)	☒	
		DIN EN ISO 22036 (06.09)	☒	
	Mercury (from aqua regia digestion)	**DIN EN 1483 (08.97)**	☐	
		DIN EN ISO 12338 (10.98)	☐	
		DIN EN ISO 12846 (08.12)	☒	
		DIN EN ISO 17852 (04.08)	☒	

Section 6.3 - Halogens

not used

6.4	**Organic parameters**	**Annex IV No. 1.4.4 and 1.4.5 AltholzV**		
	Pentachlorophenol (PCP)	**Annex IV AltholzV, No. 1.4.4**	☒	Br
		DIN ISO 14154 (12.05)	☒	Br
	Polychlorinated biphenyls (PCB)	**Annex IV AltholzV, No. 1.4.5 in conjunction with DIN 38414- 20 (01.96)**	☒	Br

Abbreviations used:

AbfKlärV	German Sewage Sludge Ordinance
AltholzV	German Waste Wood Ordinance
AQS	Analytische Qualitätssicherung (Analytical Quality Assurance)
ASU	Official Collection of Methods of Analysis on the basis of Section 64 German Food and Feed Act (LFGB), Section 38 Tobacco Products Act and Section 28b Genetic Engineering Act
MP-00	In-house method of AGROLAB Labor GmbH
DepV	German Landfill Ordinance
DEV	Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlammuntersuchung (German standard methods for analysis of water, waste water and sludge)
DIN	Deutsches Institut für Normung (German Institute for Standardization)
DVWK	Deutscher Verband für Wasserwirtschaft und Kulturbau e.V. (German Association for Water Management and Land Improvement)
EN	European standard
EPA	Environmental Protection Agency, USA
HLUG	Hessisches Landesamt für Umwelt und Geologie (Hessian Agency for Nature Conservation, Environment and Geology)
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
LAGA	Bund/Länder-Arbeitsgemeinschaft Abfall (Federal/Regional Working Group on Waste)
LABO	Bund/Länder-Arbeitsgemeinschaft Bodenschutz (Federal/Regional Working Group on Soil Protection)
LAWA	Bund/Länder-Arbeitsgemeinschaft Wasser (Federal/Regional Working Group on Water)
LfU	Landesamt für Umwelt (State Office for Environment)
LUA NRW	Landesumweltamt Nordrhein-Westfalen (State Environment Office North Rhine-Westphalia)
NF	Norme Française
UBA	Umweltbundesamt (Federal Environment Agency)
VDI	Verein deutscher Ingenieure (Association of German Engineers)
VDLUFA	Verband Deutscher Landwirtschaftlicher Untersuchungs- und Forschungsanstalten e.V. (Association of German Agricultural Testing and Research Institutions)