

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-20469-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 16.12.2020

Date of issue: 19.03.2021

Holder of certificate:

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Tests in the fields:

physical and physico-chemical, sensory, microbiological analysis of water (waste water, surface water, process water, raw and groundwater, swimming and bathing pool water, and water from small bathing ponds);

physical, physico-chemical, chemical, immunological, microbiological and sensory analysis of foodstuffs;

molecular biological examinations of foodstuffs and animal feed;

sampling of milk and dairy products, surfaces, liquids, and cheese smear;

microbiological and molecular biological examinations of environmental samples from the food sector;

determination of radioactivity in foodstuffs, animal feed and waste water;

chemical, microbiological, and sensory examinations of consumer goods and packaging material;

microbiological and selected chemical analysis according to the German Drinking Water Ordinance, sampling of raw and drinking water;

sampling and microbiological analysis of industrial water according to §3 paragraph 8

42. BImSchV;

legislative environmental module water

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>.

Abbreviations used: see last page

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

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

*) 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 is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed in section 1 to 5 with different issue dates.

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

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1 Examination of water (waste water, surface water, process water, raw and ground water, swimming and bathing pool water, and water from small bathing ponds)

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
DIN EN ISO 5667-3 (A 21) 2019-07	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
DIN 19643-1 2012-11	Treatment of water of swimming pools and baths - Part 1: General requirements (in this case only 14.2 Sampling location and Sampling)
UBA recommendation 2018-12-18	Systemic examinations of drinking water installations for legionella according to the Drinking Water Ordinance - Sampling, examination procedure, and expression of the result
UBA recommendation 2018-12-18	Evaluation of the quality of drinking water regarding the parameters of lead, copper and nickel ("Sampling recommendation")
DVGW worksheet W 551 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
MUVA-MET860 2020-01	Sampling of drinking water, parameters lead, copper, and nickel (staggered stagnation sample)

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1.2 Sensory analysis

DEV B 1/2 (6. instalment 1971)	Evaluation of odour and taste
DIN EN 1622 (B 3) 2006-10	Water quality - Determination of the threshold odour number (TON) and threshold flavour number (TFN)
DVGW W 273 (M) 2019-05	Instructions for the performance of sensory analyses in water laboratories
MUVA-MET2c022 2020-01	Determination of turbidity, visual method
MUVA-MET2c028 2020-01	Drinking water appearance, qualitative description by visual determination

1.3 Physical and physicochemical parameters

DIN EN ISO 7887 (C 1) 2012-04	Water quality - Examination and determination of colour (<i>ISO 7887:2011</i>)
DIN EN ISO 7027-1 (C 2) 2016-11	Water quality - Determination of turbidity - Part 1: Quantitative methods (<i>ISO 7027-1:2016</i>)
DIN 38404-C 3 2005-07	Determination of the spectral absorption coefficient at 254 nm
DIN 38404-C 4 1976-12	Determination of temperature
DIN EN ISO 10523 (C 5) 2012-04	Water quality - Determination of pH (<i>ISO 10523:2008</i>)
DIN EN ISO 7027-2 (C 22) 2019-06	Water quality - Determination of turbidity - Part 2: Semi-quantitative methods for the assessment of transparency of waters (limitation for methods 1 a) measurement of visual range using the transparency testing tube and 1 b) measurement of visual range in the upper water layers using the transparency testing disc)

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1.4 Anions

DIN 38405-D 1 1985-12	Determination of chloride ions
DIN 38405-D 5 1985-01	Determination of sulphate ions
DEV D 8 1971	Determination of the hydrogen carbonate ion (hydrogen carbonate hardness)
DIN 38405-D 9 2011-09	Spectrometric determination of nitrate
DIN EN ISO 6878 (D 11) 2004-09	Water quality - Determination of phosphorus - Ammonium molybdate spectrometric method
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 <i>(limitation: nitrate, chloride, sulphate, fluoride - additionally: bromate, chlorate)</i>
DIN 38405-D 21 1990-10	Determination of dissolved silicate by spectrometry
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 <i>(ISO 10304-4:1997)</i>
DIN EN ISO 15061 (D 34) 2001-12	Water quality - Determination of dissolved bromate - Method by liquid chromatography of ions <i>(ISO 15061:2001)</i>

1.5 Cations

DIN 38406-E 5 1983-10	Determination of ammonia-nitrogen
DIN EN ISO 11885 (E 22) 2009-09	Water quality - Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)

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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 (*ISO 17294-2:2016*)

MUVA-MET488
2019-03 Direct determination of mercury in foodstuffs, animal feed, and water by DMA

1.6 Organic parameters

DIN EN ISO 10301 (F 4)
1997-08 Water quality - Determination of highly volatile halogenated hydrocarbons - Gas-chromatographic methods (*ISO 10301:1997*)

1.7 Gaseous components

DIN EN ISO 5814 (G 22)
2013-02 Water quality - Determination of dissolved oxygen - Electrochemical probe method

1.8 Summary effective and material parameters

DIN EN ISO 8467 (H 5)
1995-05 Water quality - Determination of permanganate index (*ISO 8467:1993*)

DIN 38409-H 6
1986-01 Water hardness

DIN 38409-H 7
2005-12 Determination of acid and base-neutralizing capacities

DIN 38409-H 9-2
1980-07 Determination of the settleable matter by volume in water and waste water with a sample volume of 2L

DIN ISO 15705 (H 45)
2003-09 Determination of the chemical oxygen demand (COD) - Short process

1.9 Rapid test with ready-to-use reagents for water testing

Machery-Nagel GmbH & Co.KG Colorimetric determination of free chlorine, total chlorine, and visocolor®ECO Chlorine 2 bound chlorine in drinking water, swimming pools, and water reservoirs by test kit
Order No.: 931015
2016-04 (modification: *for cooling water as well*)

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<p>Merck KGaA MColortest™ Chlorine and pH test Order No.: 1.11174.0001 2013-11</p>	<p>Colorimetric determination of free chlorine, total chlorine, and bound chlorine in swimming pool water by test kit</p>
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1.10 Microbiological examinations

<p>DIN EN ISO 6222 (K 5) 1999-07</p>	<p>Water quality - Enumeration of cultivable micro-organisms - Colony count by inoculation in a nutrient agar culture medium</p>
<p>DIN EN ISO 9308-2 (K 6-1) 2014-06</p>	<p>Water quality - Enumeration of Escherichia coli and coliform bacteria</p>
<p>DIN EN ISO 16266 (K 11) 2008-05</p>	<p>Water quality - Detection and enumeration of Pseudomonas aeruginosa - Method by membrane filtration (modification: <i>differentiation also by MALDI-TOF-MS</i>)</p>
<p>DIN EN ISO 9308-1 (K 12) 2017-09</p>	<p>Water quality - Enumeration of Escherichia coli and coliform bacteria - Part 1: Membrane filtration method for waters with low bacterial background flora</p>
<p>DIN EN ISO 7899-2 (K 15) 2000-11</p>	<p>Water quality - Detection and enumeration of intestinal enterococci - Part 2: Membrane filtration method</p>
<p>DIN EN ISO 11731 (K 23) 2019-03</p>	<p>Water quality - Enumeration of Legionella (ISO 11731:2017) (modification: <i>differentiation also by MALDI-TOF-MS</i>)</p>
<p>DIN EN ISO 14189 (K 24) 2016-11</p>	<p>Water quality - Enumeration of Clostridium perfringens - Method using membrane filtration (ISO 14189:2013)</p>
<p>UBA recommendation 2018-12</p>	<p>Systemic examinations of drinking water installations for legionella according to the Drinking Water Ordinance - Sampling, examination procedure, and expression of the result</p>
<p>UBA recommendation 2003</p>	<p>Hygienic requirements for small bathing ponds (artificial swimming and bathing ponds)</p>
<p>Drinking Water Ordinance 05.12.1990</p>	<p>Microbiological methods - spore-forming sulphite-reducing anaerobes - examination by fluid enrichment</p>

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Drinking Water Ordinance 2018-01	Colony count at 22°C and 36°C in drinking water by pour plate technique (modification: <i>for pool water and cooling water as well</i>)
MUVA-MET564 2012-06	Detection of <i>Pseudomonas aeruginosa</i> /pseudomonads in process water and cheese brine

2 Examination of foodstuffs, environmental samples from the food sector (production and handling), animal feed and waste water

2.1 Sampling of milk and dairy products, surfaces, liquids, and cheese smear

DIN EN ISO 707 2009-01	Milk and milk products - Guidance on sampling
DIN ISO 18593 2018-10	Microbiology of the food chain - Horizontal methods for surface sampling
MUVA-MET854 2016-10	Sampling of liquids and cheese smear for microbiological and chemical examinations

2.2 Physical, physicochemical, and chemical examinations

2.2.1 Determination of primary and secondary ingredients, minerals as well as parameters in foodstuffs by gravimetric analysis **

DIN EN ISO 1735 2005-05	Cheese and processed cheese products - Determination of fat content - Gravimetric method (Reference method) according to Schmid-Bondzynski-Ratzlaff
DIN EN ISO 1736 2009-03	Dried milk and dried milk products - Determination of fat content - Gravimetric method (Reference method) according to Röse-Gottlieb
DIN EN ISO 1737 2009-03	Evaporated milk and sweetened condensed milk - Determination of fat content - Gravimetric method (Reference method) according to Röse-Gottlieb
DIN EN ISO 2450 2009-03	Cream - Determination of fat content - Gravimetric method (Reference method) according to Röse-Gottlieb
DIN EN ISO 5534 2004-09	Cheese and processed cheese - Determination of the total solids content (Reference method)

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DIN EN ISO 7208 2009-03	Skimmed milk, whey and buttermilk - Determination of fat content - Gravimetric method (Reference method) according to Röse-Gottlieb
ISO 5543 IDF 127 2004-12	Caseins and caseinates - Determination of fat content - Gravimetric method (Reference method) according to Schmid-Bondzynski-Ratzlaff
ISO 5550 IDF 78 2006-10	Caseins and caseinates - Determination of moisture content (Reference method)
ISO 6731 IDF 21 2010-11	Milk, cream and evaporated milk - Determination of total solids content (Reference method)
ISO 6734 IDF 15 2010-11	Sweetened condensed milk - Determination of total solids content (Reference method) <i>(determination by drying)</i>
ASU L 00.00-18 1997-01 with correction 2016-10	Examination of foodstuffs - Determination of fibres in foodstuffs
ASU L 01.00-9 2012-01	Examination of foodstuffs - Determination of fat content in milk according to Röse-Gottlieb - Gravimetric method (Reference method)
ASU L 01.00-20 2013-08	Examination of foodstuffs - Determination of fat content in milk and dairy products according to the gravimetric Weibull-Berntrop method
ASU L 01.00-77 2002-05	Examination of foodstuffs - Determination of total ash in milk and dairy products
ASU L 02.09-2 1986-05	Examination of foodstuffs - Determination of fixed ash of caseins (Reference method)
ASU L 02.09-3 1986-05	Examination of foodstuffs - Determination of ash of rennet casein and caseinates (Reference method) <i>(adoption of the norm of the same name DIN 10452, issue March 1983)</i>
ASU L 04.00-8 1992-06	Examination of foodstuffs - Determination of water content in butter <i>(adoption of the norm of the same name DIN 10317, issue August 1991)</i>

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ASU L 04.00-16 1990-12	Examination of foodstuffs - Determination of non-fatty dry extract of butter (Routine method)
ASU L 04.00-24/1 2013-01	Examination of foodstuffs - Determination of water content, non-fatty dry extract, and fat content in butter - Part 1: Determination of water content (Reference method) <i>(adoption of the norm of the same name DIN EN ISO 3727 part 1, issue April 2002)</i>
ASU L 06.00-3 2014-08	Examination of foodstuffs - Determination of water content in meat and meat products - gravimetric method (Reference method)
ASU L 06.00-4 2007-04	Examination of foodstuffs - Determination of ash in meat and meat products
ASU L 06.00-6 2014-08	Examination of foodstuffs - Determination of total fat content in meat and meat products - Gravimetric method according to Weibull-Stoldt
ASU L 13.05-3 2002-05	Examination of foodstuffs - Determination of fat content in margarine and other spreadable fats
IDF 26A 1993-04	Determination of water content in milk powder by gravimetry
IDF 87 2014-01	Determination of dispersibility and wettability of instantised dried milk products by gravimetry
VDLUFA VI C 15.2.4 1995	Determination of free fat in fatty, dried dairy products by gravimetry
MUVA-MET204 2018-04	Determination of calcium content in milk and dairy products by gravimetry
MUVA-MET298 2016-12	Drained net weight examination of solid foodstuffs with covering liquids by gravimetry
MUVA-MET2c019 2015-04	Determination of filling quantity of foodstuffs in pre-packaged products by gravimetry and volumetry
MUVA-MET2c026 2020-01	Determination of dry matter in milk and dairy products by microwave technology / halogen radiation

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2.2.2 Determination of ingredients as well as parameters in foodstuffs by titration **

DIN EN ISO 5943 2007-01	Cheese and processed cheese products - Determination of chloride content - Potentiometric titration method <i>(ISO 5943:2006)</i>
ASU L 01.00-7 2002-05	Examination of foodstuffs - Determination of acidity of milk and liquid dairy products <i>(adoption of the norm of the same name DIN 10316, issue August 2000)</i>
ASU L 01.00-10 Part 1 and 2 2002-12	Examination of foodstuffs - Determination of nitrogen content in milk Part 1: Kjeldahl principle <i>(adoption of the norm of the same name DIN EN ISO 8968-1, issue June 2002)</i> Part 2: Block-digestion method (macro method) <i>(adoption of the norm of the same name DIN EN ISO 8968-2, issue June 2002)</i>
ASU L 02.09-5 1986-05	Examination of foodstuffs - Determination of protein content in caseins and caseinates (Reference method) <i>(adoption of the norm of the same name DIN 10454, issue March 1983)</i>
ASU L 06.00-7 2014-08 with addition 2018-06	Examination of foodstuffs - Determination of crude protein content in meat and meat products - Titrimetric method according to Kjeldahl (Reference method)
ASU L 13.00-5 2012-01	Examination of foodstuffs - Determination of acid value and acidity of animal and vegetable fats and oils <i>(adoption of the norm of the same name DIN EN ISO 660, issue October 2009)</i>
ASU L 13.00-6 1991-06	Examination of foodstuffs - Determination of peroxide value in fats and oils, method according to Wheeler, method according to Sully
IDF 12C 2000	Determination of sodium chloride content in butter by titration
EG 2799/1999 annex III	Determination of skimmed milk powder content in compound feed via paracasein after enzymatic coagulation according to casein-Resmini method
VDLUFA VI C 8.4 2000	Determination of titratable acidity of dried milk products - titrimetric method (Reference method)

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VDLUFA VI C 10.6.2 1988	Determination of chloride content in cheese by method according to Erbacher
VDLUFA VI C 16.3 1988	Determination of iodine value according to Hanus in fats and oils
VDLUFA VI C 16.5 1993	Determination of butyric acid value (semi-micro determination) in milk, dairy products, and foodstuffs
VDLUFA VI C 30.3 1985-01	Determination of NPN (non-protein nitrogen) according to Kjeldahl in milk and dairy products
VDLUFA VI C 30.4 1985-01	Determination of casein content in milk
MUVA-MET009 2011-10	Determination of vitamin C in infant food, milk, and vitaminised dairy products as well as processed cheese with ascorbate additives by titrimetric rapid test
MUVA-MET110 2016-01	Determination of chloride content in cheese, processed cheese, meat products, and salt baths by potentiometric titration

2.2.3 Butyrometric determination of fat in milk and dairy products

DIN 10329 1976-06	Determination of fat content of cream; weighing method according to Roeder
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2.2.4 Determination of ingredients as well as additives in foodstuffs by photometry (incl. enzymatic analysis) **

DIN EN ISO 8069 2007-09	Dried milk - Determination of content of lactic acid and lactates
DIN EN ISO 14673-3 2004-05	Milk and milk products - Determination of nitrate and nitrite contents - Part 3: Method using cadmium reduction and flow injection analysis with in-line dialysis (Routine method)
DIN 10335 2010-09	Milk and milk products except milk powder - Determination of L- and D-lactic acid (L- and D-lactate) content - Enzymatic method

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ASU L 00.00-46/2 1999-11	Examination of foodstuffs - Determination of sulphite in foodstuffs - Part 2: Enzymatic method <i>(adoption of the norm of the same name DIN EN 1988 Part 2, issue May 1988)</i>
ASU L 01.00-17 2016-10	Examination of foodstuffs - Determination of lactose and galactose content in milk and dairy products - Enzymatic method <i>(adoption of the norm of the same name DIN 10344, issue May 2015)</i>
ASU L 01.00-31 1988-12	Examination of foodstuffs - Determination of lactulose content in foodstuffs
ASU L 01.00-41 1991-12	Examination of foodstuffs - Determination of the phosphatide level in milk, dairy products, and cheese
ASU L 01.00-86 2012-01	Examination of foodstuffs - Determination of citric acid content in milk and milk products - Enzymatic method <i>(adoption of the norm of the same name DIN 10325, issue July 2010)</i>
ASU L 01.00-90 2014-02	Examination of foodstuffs - Determination of lactose content in lactose-reduced milk and lactose-reduced dairy products in the presence of glucose - Enzymatic method
ASU L 01.00-92 2016-03	Examination of foodstuffs - Determination of total phosphorus content in milk and dairy products - Spectrophotometrical method
ASU L 02.00-12 2009-06	Examination of foodstuffs - Determination of sucrose and glucose content in dairy products and ice cream - Enzymatic method <i>(adoption of the norm of the same name DIN 10326, issue December 2007)</i>
ASU L 03.00-39 2010-09	Examination of foodstuffs - Determination of starch in grated cheese - Enzymatic method
ASU L 06.00-8 2010-09	Examination of foodstuffs - Determination of hydroxyproline content in meat and meat products - Photometric method after acid digestion
ASU L 10.00-1 1982-05	Examination of foodstuffs - Determination of histamine in fish by fluorescence photometry - application for determination in cheese

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ASU L 26.00-2 2001-07	Examination of foodstuffs - Continuous flow process for the determination of nitrate content in vegetable products after cadmium reduction
Boehringer Mannheim/ r-biopharm D-glucose/D-fructose Order No.: 10139106035 2017-08	UV-test for the determination of D-glucose and D-fructose in foodstuffs
Boehringer Mannheim/ r-biopharm Acetic acid (Acetate) Order No.: 10148261035 2017-08	UV-test for the determination of acetic acid in foodstuffs
Boehringer Mannheim/ r-biopharm Ethanol Order No.: 10176290035 2017-08	UV-test for the determination of ethanol in foodstuffs
Boehringer Mannheim/ r-biopharm Starch Order No.: 10207748035 2017-07	UV-test for the determination of native starch and of partial starch hydrolysate in food stuffs
Boehringer Mannheim/ r-biopharm Urea/ammoniac Order No.: 10542946035 2017-09	UV-test for the determination of urea and ammoniac in foodstuffs
Boehringer Mannheim/ r-biopharm Sucrose/D-glucose/ D-fructose Order No.: 10716260035 2017-11	UV-test for the determination of sucrose, D-glucose, and D-fructose in foodstuffs

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Boehringer Mannheim/ r-biopharm Ammoniac Order No.: 11112732035 2017-07	UV-test for the determination of ammoniac in foodstuffs
Boehringer Mannheim/ r-biopharm Maltose/sucrose/D-glucose Order No.: 11113950035 2017-11	UV-test for the determination of maltose, sucrose, and D-glucose in foodstuffs
MUVA-MET027 2009-04	Determination of gelatine in dairy products by photometry

2.2.5 Determination of ingredients as well as additives in foodstuffs by spectroscopic methods

MUVA-MET2c025 2020-01	Determination of the fat content in milk and dairy products by nuclear magnetic resonance (NMR)
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2.2.6 Determination of the pH value of milk, dairy products, and fruit juice by electrode measurement **

ASU L 02.09-6 2018-10	Examination of foodstuffs - determination of the pH value of caseins and caseinates - Reference method
ASU L 04.00-13 2006-12	Examination of foodstuffs - Determination of the pH value of butter plasm (<i>adoption of the norm of the same name DIN 10349, issue October 2004</i>)
VDLUFA VI C 8.2 2000	Determination of the pH value of milk and dairy products - Electrometric method
MUVA-MET2c029 2020-01	Determination of the pH value of fruit juice - Electrometric method

2.2.7 Fluorimetric determination of phosphatase activity in foodstuffs **

DIN EN ISO 11816-1 2014-03	Milk and milk products - Determination of alkaline phosphatase activity - Part 1: Fluorimetric method for milk and milk-based drinks
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DIN EN ISO 11816-2 2003-06	Milk and milk products - Determination of alkaline phosphatase activity - Part 2: Fluorimetric method for cheese (<i>ISO 11816-2:2016</i>)
DIN EN ISO 11816-2 2016-12	Milk and milk products - Determination of alkaline phosphatase activity - Part 2: Fluorimetric method for cheese (<i>ISO 11816-2:2016</i>)
MUVA-MET199 2016-11	Determination of alkaline phosphatase activity in milk, liquid dairy products, dried milk products, and butter serum by fluorimetry

2.2.8 Thin layer chromatographic determination of primary and secondary ingredients, additives and toxins in foodstuffs **

ASU L 00.00-2 1981-11	Examination of foodstuffs - Determination of aflatoxins B1, B2, G1, and G2 in foodstuffs
ASU L 01.00-15 1987-06	Examination of foodstuffs - Detection and determination of aflatoxin M1 in milk and milk powder
DAB 10/EUP/USP 1996	Examination of identity of lactose by thin layer chromatography
MUVA-MET017 2009-04	Determination of polysaccharide-based thickeners or stabilisers in dairy products and foodstuffs (modification: <i>determination of sugar components by thin layer chromatography</i>)

2.2.9 Electrophoretic determination of proteins in foodstuffs **

ASU L 01.00-39 1995-01	Examination of foodstuffs - Species determination in milk, dairy products, and cheese by isoelectric focusing (PAGIF)
ASU L 03.52-1 1997-09	Examination of foodstuffs - Determination of cow's milk casein in cheese from sheep's, goat's, or buffalo's milk or mixtures of sheep's, goat's, or buffalo's milk (Reference method)
MUVA-MET197 2019-01	Determination of whey protein and casein content in milk and dairy products by electrophoresis
MUVA-MET207 2016-06	Determination of the degree of denaturation of β -lactoglobulin in milk and dairy products by electrophoresis

2.2.10 Hydrometric density determination of milk and dairy products

ASU L 01.00-28 1988-12	Examination of foodstuffs - Hydrometric determination of density of milk <i>(adoption of the norm of the same name DIN 10459, issue October 1988)</i>
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2.2.11 Determination of the degree of purity of dairy products by filtration **

VDLUFA VI C 26.3 1995	Determination of the degree of purity of dried milk products by filtration
MUVA-MET150 2016-04	Determination of the degree of purity of caseins and caseinates by filtration <i>(based on ISO 5739 IDF 107:2003-01, modified)</i>

2.2.12 Examination of the particle size of dairy products by sieve analysis *

DIN 66165-1 2016-08	Particle size analysis - Sieving analysis - Part 1: Fundamentals
DIN 66165-2 2016-08	Particle size analysis - Sieving analysis - Part 2: Procedure

2.2.13 Cryoscopic examination of milk

DIN EN ISO 5764 2009-10	Milk - Determination of freezing point - Thermistor cryoscope method (Reference method) <i>(ISO 5764:2009)</i>
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2.2.14 Turbidimetric examination of dairy products *

ADPI Bulletin 916, p. 54 ff. 1990	Determination of undenatured whey protein nitrogen in skimmed milk powder and concentrated skim milk
ADPI Bulletin 916, p. 54 ff. 1990	Determination of undenatured whey protein nitrogen in whey powder, whole milk powder, and skimmed milk <i>(modification: adjusted sample weight depending on matrix)</i>

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2.2.17 High-performance liquid chromatographic examination of foodstuffs

2.2.17.1 Determination of ingredients, additives, contaminants as well as residues of veterinary medicinal products in foodstuffs and infant food by HPLC with standard detectors **

DIN EN ISO 9233-2 2018-08	Cheese, cheese rind and processed cheese - Determination of natamycin content - Part 2: High-performance liquid chromatographic method for cheese, cheese rind and processed cheese
ISO 27105/IDF216 2016-04	Milk and cheese - Determination of hen's egg white lysozyme content by high performance liquid chromatography
DIN EN 12821 2009-08	Foodstuffs - Determination of vitamin D by high performance liquid chromatography - Measurement of cholecalciferol (D ₃) or ergocalciferol (D ₂)
DIN EN 14122 2014-08	Foodstuffs - Determination of vitamin B1 by high performance liquid chromatography
DIN EN 15607 2009-09	Foodstuffs - Determination of d-biotin by HPLC
DIN EN 15652 2009-09	Foodstuffs - Determination of niacin by HPLC
DIN 10482-2 2006-10	Determination of Annatto content in cheese - Part 2: High performance liquid chromatographic method
ASU L 00.00-9 1984-11	Examination of foodstuffs - Determination of preservatives in low-fat foodstuffs
ASU L 00.00-29 2001-07	Examination of foodstuffs - Determination of sodium cyclamate in foodstuffs - HPLC method
ASU L 00.00-28 2001-07	Examination of foodstuffs - Determination of acesulfame-K, aspartame, and sodium saccharine in foodstuffs - HPLC method <i>(adoption of the norm of the same name DIN EN 12856, issue July 1999, as a replacement for the previous official method L 00.00-28)</i>
ASU L 00.00-62 2001-07	Examination of foodstuffs - Determination of vitamin E (α-, β-, γ- und δ-tocopherol) in foodstuffs by HPLC <i>(adoption of the norm of the same name DIN EN 12822, issue July 2000)</i>

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ASU L 00.00-63/1 2001-07	Examination of foodstuffs - Determination of vitamin A in foodstuffs by HPLC - Part 1: Determination of all-trans-retinol and 13-cis-retinol <i>(adoption of the norm of the same name DIN EN 12823 Part 1, issue July 2000)</i>
ASU L 00.00-86 2004-07	Examination of foodstuffs - Determination of vitamin K1 by HPLC <i>(adoption of the norm of the same name DIN EN 14148, issue October 2003)</i>
ASU L 01.00-65 1997-09	Examination of foodstuffs - Determination of content of acid-soluble β -lactoglobulin in pasteurized milk - reversed phase high-performance liquid chromatographic method <i>(adoption of the norm of the same name DIN 10473, issue December 1997)</i>
ASU L 31.00-20 2004-12	Examination of foodstuffs - Determination of patulin in clear and cloudy apple juice and apple puree - HPLC method with cleanup by solid-liquid distribution <i>(adoption of the norm of the same name DIN EN 14177, issue March 2004)</i>
ASU L 40.00-10/3 2003-12	Examination of foodstuffs - Examination of honey - Determination of hydroxymethylfurfural - high-performance liquid chromatographic method <i>(adoption of the norm of the same name DIN 10651-3, issue February 2002)</i>
IDF 165 1993	Determination of antioxidants in butterfat and fatty dairy products by HPLC
VO (EG) No. 273/2008 Annex XIII	Determination of glycomacropeptide A (GMP A) in skimmed milk powder, other milk products, and milkcontaining products by HPLC
Ital. law gazette No. 162 Decree of 16/05/1996	Determination of furosine in milk and dairy products by HPLC
SLMB 62/14 2000-03	Determination of vitamin C (ascorbic acid) in foodstuffs by HPLC
MUVA-MET008 2018-11	Determination of Vitamin B6 in milk, dairy products, children's food, and other foodstuffs by HPLC-ion-pair chromatography
MUVA-MET018 2010-05	Determination of theobromine, caffeine, and theophylline in coffee-, tea-, and cocoa-based foodstuffs by HPLC

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MUVA-MET021 2013-11	Determination of biogenic amines histamine, putrescine, cadaverine, tryptamine, and tyramine in cheese and foodstuffs by HPLC
MUVA-MET044 2009-04	Determination of chemotherapeutics (specifically sulfonamides, antiparasitics, and other residues of veterinary medicinal products) in animal tissue, milk, and dairy products by HPLC
MUVA-MET062 2011-01	Determination of Vitamin B ₂ in milk, dairy products, children's food, and other foodstuffs by HPLC
MUVA-MET066 2009-04	Determination of β -carotene in children's food by HPLC
MUVA-MET067 2009-04	Determination of vitamin B ₁₂ in milk, dairy products, children's food, and other foodstuffs by SPE and HPLC
MUVA-MET2c015 2018-01	Determination of mono- and disaccharides in foodstuffs by HPLC

2.2.17.2 Determination of ingredients, additives, contaminants, pesticide residues as well as residues of veterinary medicinal products in foodstuffs, dairy auxiliary materials, and infant food by high-performance liquid chromatography with mass spectrometry (HPLC-MS/MS) **

ASU L 00.00-115 2014-02	Examination of foodstuffs - Determination of pesticide residues in vegetable foods - GC/MS and/or LC-MS/MS after acetonitrile extraction/distribution and cleanup by dispersive SPE (QuEChERS) (in this case for food groups: <i>Fruits and vegetables (except dried fruit and honey), foods of animal origin (except eggs); as well as organic foodstuffs</i>)
ASU L 00.00-134 2010-09	Examination of foodstuffs - Determination of coumarin in cinnamon containing foodstuffs by HPLC-DAD or HPLC-MS/MS
ASU L 06.00-57(V) 2009-06	Examination of foodstuffs - Determination of macrolide and lincosamide residues in kidneys and milk by LC-MS/MS
SLMB 1401.1 2005-01	Determination of nitrofurans metabolites in foodstuffs by LC-MS/MS
SLMB 1575.1 2006-09	Determination of quinolone and fluorquinolone antibiotics in foodstuffs by LC-MS/MS

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MUVA-MET050 2019-01	Determination of aflatoxins M1, B1, B2, G1, and G2 in nuts, spices, milk, milk powder, and dairy products after cleanup by immunoaffinity columns (LC-MS/MS)
MUVA-MET076 2011-03	Determination of pantothenic acid in foodstuffs by stable isotope dilution essay via LC-MS/MS
MUVA-MET077 2008-04	Determination of free folic acid in foodstuffs by stable isotope dilution essay via LC-MS/MS
MUVA-MET080 2018-09	Multi-method for simultaneous determination of Fusarium toxins (Type A and B trichothecene, fumonisins, and zearalenone) in foodstuffs by LC-MS/MS
MUVA-MET083 2010-11	Determination of chloramphenicol in foodstuffs by LC-MS/MS
MUVA-MET085 2010-11	Multi-method for determination of betalactam antibiotics in milk and dairy products by LC-MS/MS
MUVA-MET089 2011-12	Determination of aminoglycosides in milk and dairy products by LC-MS/MS
MUVA-MET095 2018-10	Determination of glyphosate, glufosinate, and AMPA in milk by LC-MS/MS
MUVA-MET096 2019-04	Examinations of foodstuffs - Determination of residues of antibiotic groups benzimidazole, quinolones, tetracyclines, and sulphonamides in milk and dairy products by HPLC-MS/MS
MUVA-MET097 2018-12	Determination of nitroimidazoles in milk, dairy products, and eggs by SPE and LC/MS-MS
MUVA-MET357 2012-05	Determination of melamine and cyanuric acid in milk and dairy products by HPLC-MS/MS
MUVA-MET359 2015-04	Determination of quaternary ammonium compound residues (QAV) in milk and dairy products by LC-MS/MS
MUVA-MET362 2020-01	Determination of chlorate and perchlorate in milk, dairy products, dairy auxiliary materials, fruit, vegetables, aqueous solutions, water, powder, and whey by LC-MS/MS

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MUVA-MET403
2019-03

Determination of chlorinated, phosphorous, and nitrogenous pesticides as well as pyrethrum, piperonyl butoxide, and polychlorinated biphenyls in foodstuffs by gas chromatography and liquid chromatography
(in this case for food groups: fruits and vegetables (except dried fruit and honey), foods of animal origin (except eggs); as well as organic foodstuffs)

2.2.18 Gas chromatographic examination of foodstuffs

2.2.18.1 Determination of ingredients, additives, organic contaminants in foodstuffs by gas chromatography with standard detectors (e. g. GC-FID, GC-ECD, GC-FPD) **

ASU L 01.00-35
1990-06

Examination of foodstuffs - Determination of volatile halogenated hydrocarbons in milk

ASU L 17.00-12
1999-11
with correction
2003-07

Examination of foodstuffs - Determination of butyric acid as methyl ester in fat from bread including biscuits made from bread dough (Application for confectionery and butter preparations as well)

MUVA-MET403
2016-12

Determination of chlorinated, phosphorous, and nitrogenous pesticides as well as pyrethrum, piperonyl butoxide, and polychlorinated biphenyls in foodstuffs by gas chromatography and liquid chromatography
(in this case for food groups: fruits and vegetables (except dried fruit and honey), foods of animal origin (except eggs); as well as organic foodstuffs)

MUVA-MET409
2017-09

Determination of benzoic and sorbic acid in dairy products and gourmet salads by capillary gas chromatography of butyl esters (GC-FID)

MUVA-MET412
2020-01

Determination of fatty acid patterns in fats (after extraction from foodstuffs if required) by capillary gas chromatography of methyl esters

MUVA-MET413
2019-01

Determination of short chain free fatty acids in dairy products (cheese, milk powder) by headspace gas chromatography

MUVA-MET415
2018-11

Determination of sterols in fats and fatty foodstuffs by capillary gas chromatography

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MUVA-MET418 2019-01	Simultaneous determination of organochlorine pesticides (OCP) and polychlorinated biphenyls (PCB's) in milk, dairy products and other foodstuffs by capillary-GC-ECD according to Steinwandter
MUVA-MET482 2011-05	Detection and determination of foreign fat in milk fat by gas chromatographic triglyceride analysis

2.2.18.2 Determination of organic contaminants and residues in foodstuffs by gas chromatography with mass spectrometry (GC-MS) **

ASU L 00.00-115 2014-02	Examination of foodstuffs - Determination of pesticide residues in plant-based foodstuffs - GC/MS and/or LC-MS/MS after acetonitrile extraction/distribution and cleanup by dispersive SPE (QuEChERS) <i>(in this case for food groups: Fruits and vegetables (except dried fruit and honey), animal-based foods (except eggs); as well as organic foodstuffs)</i>
MUVA-MET351 2009-06	Determination of polychlorinated dibenzodioxins and dibenzofurans as well as dioxin-like PCB in milk and dairy products by gas chromatography with mass spectrometry (GC-MS)
MUVA-MET360 2012-07	Determination of residues of volatile aromatic hydrocarbons in milk and dairy products by headspace-GC-MS
MUVA-MET361 2018-11	Determination of plasticisers and phthalates in milk, dairy products, and other fatty foodstuffs by GC-MS
MUVA-MET403 2019-03	Determination of chlorinated, phosphorous, and nitrogenous pesticides as well as pyrethrum, piperonyl butoxide, and polychlorinated biphenyls in foodstuffs by gas chromatography and liquid chromatography <i>(in this case for food groups: fruits and vegetables (except dried fruit and honey), foods of animal origin (except eggs); as well as organic foodstuffs)</i>
MUVA-MET408 2020-01	Determination of polycyclic aromatic hydrocarbons (PAH) in milk, dairy products, and other fatty foodstuffs by GC-MS

2.2.19 Determination of organic contaminants in foodstuffs by coupled high-performance liquid chromatography and gas chromatography with standard detector (LC-GC-FID)

DIN EN 16995
2017-08

Foodstuffs - Vegetable oils and foodstuff on basis of vegetable oils
- Determination of mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) with on-line HPLC-GC-FID analysis
(modification: *application for milk, dairy products, milk fat*)

2.2.20 Determination of minerals and element traces in foodstuffs by atomic absorption spectroscopy (AAS) **

MUVA-MET426
2016-12

Determination of lead and cadmium (and other elements such as aluminium) in milk, dairy products, and foodstuffs by atom absorption spectroscopy (AAS) in graphite furnace after pressure or microwave digestion

MUVA-MET483
2016-08

Determination of total arsenic by atom absorption spectroscopy (AAS) hydride technology

2.2.21 Determination of element traces in foodstuffs and animal feed by Direct Mercury Analyzer (DMA)

MUVA-MET488
2019-03

Direct determination of mercury in foodstuffs, animal feed, and water by DMA

2.2.22 Determination of minerals and element traces in foodstuffs by mass spectrometry with inductively coupled plasma (ICP-MS) **

DIN EN 15111
2007-06

Foodstuffs - Determination of trace elements - Determination of iodine by ICP-MS (inductively coupled plasma mass spectrometry)

MUVA-MET490
2019-12

Determination of metal(traces) in foodstuffs by ICP-MS
(in this case: *for the determination of arsenic, lead, cadmium, chromium, copper, manganese, molybdenum, nickel, selenium*)

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2.2.23 Determination of minerals and element traces in foodstuffs by atomic emission spectrometry with inductively coupled plasma (ICP-OES) **

MUVA-MET450 2019-12	Determination of minerals calcium, potassium, magnesium, sodium, phosphorous, and sulphur as well as trace elements iron, copper, manganese, zinc, and other elements in foodstuffs by ICP-OES
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2.2.24 Determination of radioactivity of foodstuffs, animal feed, and waste water

2.2.24.1 Determination of radionuclides in foodstuffs, animal feed, and waste water by gamma spectrometry **

F- γ -SPEKT-MILCH-01 1992-09	Method for gamma spectrometric determination of radionuclides in milk samples
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F- γ -SPEKT-MIPRO-01 1992-09	Method for gamma spectrometric determination of radionuclides in cheese samples (imports)
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E- γ -SPEKT-LEBM-01 1997-05	Method for gamma spectrometric determination of radionuclides in foodstuffs
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F- γ -SPEKT-FUMI-01 1998-11	Method for gamma spectrometric determination of radionuclides in animal feed and animal feed raw materials
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F- γ -SPEKT-PFLAN-01 1998-11	Method for gamma spectrometric determination of radionuclides in plant samples (indicators)
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H- γ -SPEKT-AWASS-01 2000-10	Method for gamma spectrometric determination of radionuclides in waste water
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MUVA-MET301 2019-02	Radionuclides in foodstuffs, animal feed, plant material, and waste water (gamma spectrometric) <i>(based on E-γ-SPEKT-LEBM-01:1997-05 and in consideration of control centre methods: F-γ-SPEKT-MILCH-01:1992-09; F-γ-SPEKT-MIPRO-01:1992-09, F-γ-SPEKT-FUMI-01:1998-11, F-γ-SPEKT-PFLAN-01:1998-11, H-γ-SPEKT-AWASS-01:2000-10)</i>
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2.2.24.2 Determinations of strontium-90 or strontium 89/90 in foodstuffs, animal feed, and waste water by beta proportional counting **

F-Sr-90-MILCH-02 1992-09	Method for determination of strontium-90 in milk (tributyl phosphate method)
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F-Sr-90-FUMI-02 1992-09	Method for determination of strontium-90 in animal feed samples and vegetation samples (tributyl phosphate method)
E-Sr-89/Sr-90-LEBM-01 2000-10	Method for determination of strontium-89 and strontium-90 in foodstuffs
E-Sr-90-LEBM-02 1992-09	Method for determination of strontium-90 in foodstuffs via daughter radionuclide yttrium-90
MUVA-MET302 2019-02	Determination of strontium-90 in milk, cheese as well as waste water by beta proportional counting (based on and summary of control centre methods: <i>F-Sr-90-MILCH-02:1992-09, E-Sr-89/Sr-90-LEBM-01:2000-10, E-Sr-90-LEBM-02:1992-09</i>)

2.3 Immunological examinations of foodstuffs

2.3.1 Detection of allergens by ELISA-procedures in foodstuffs *

RIDASCREEN® β -lactoglobulin Order No.: R4901, r-biopharm 2016-11	Immunoenzymatic detection of β -lactoglobulin in foodstuffs by ELISA test kit
RIDASCREEN®FAST egg Order No.: R6402, r-biopharm 2015-12	Immunoenzymatic detection of egg white in foodstuffs by ELISA test kit
nutriLinia® peanuts-E Order No.: NC-6014, Romer 2017-02	Immunoenzymatic detection of peanuts in foodstuffs by ELISA test kit
RIDASCREEN® gliadin Order No.: R7001, r-biopharm 2015-10	Immunoenzymatic detection of gluten in foodstuffs by ELISA test kit
nutriLinia® hazelnut-E Order No.: NC-6016, Romer 2017-02	Immunoenzymatic detection of hazelnut in foodstuffs by ELISA test kit
nutriLinia® almond-E Order No.: NC-6018, Romer 2017-02	Immunoenzymatic detection of almond in foodstuffs by ELISA test kit

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nutriLinia® soy-E Order No.: NC-6011, Romer 2017-02	Immunoenzymatic detection of soy in foodstuffs by ELISA test kit
RIDASCREEN®FAST mustard Order No.: R6152, r-biopharm 2017-06	Immunoenzymatic detection of mustard in foodstuffs by ELISA test kit
RIDASCREEN®FAST lysozyme Order No.: R6452, r-biopharm 2016-08	Immunoenzymatic detection of lysozyme in foodstuffs by ELISA test kit
nutriLinia® walnut-E Order No.: NC-6013, Romer 2017-02	Immunoenzymatic detection of walnut in foodstuffs by ELISA test kit
nutriLinia® cashew-E Order No.: NC-6010, Romer 2017-02	Immunoenzymatic detection of cashew in foodstuffs by ELISA test kit
nutriLinia® pistachio-E Order No.: NC-6019 Romer 2017-02	Immunoenzymatic detection of pistachio in foodstuffs by ELISA test kit
RIDASCREEN®FAST macadamia Order No.: R6852, r-biopharm 2018-03	Immunoenzymatic detection of macadamia in foodstuffs by ELISA test kit
nutriLinia® sesame-E Order No.: NC-6005, Romer 2017-02	Immunoenzymatic detection of sesame in foodstuffs by ELISA test kit
nutriLinia® milk-E Order No.: NC-6033, TRANSIA 2015-11	Immunoenzymatic detection of milk in foodstuffs by ELISA test kit

2.3.2 Determination of veterinary medicinal products and toxins in foodstuffs by enzyme immunoassay *

RIDASCREEN® aflatoxin M ₁ Order No.: R1121, r-biopharm 2018-10	Determination of aflatoxin M1 in milk and milk powder by ELISA <i>(based on ASU L 01.00-34 1989-12)</i>
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RANDOX chloramphenicol Order No.: CN 1469, RANDOX Laboratories 2016-08	Determination of chloramphenicol in milk and meat by enzyme immunology
Romer Labs gentamycin Order No.: 52300, Romer Labs 2017-03	Determination of gentamycin in milk by ELISA
Romer Labs neomycin Order No.: 52400, Romer Labs 2017-03	Determination of neomycin in milk by ELISA
Romer Labs streptomycin Order No.: 52500, Romer Labs 2017-03	Determination of streptomycin/dihydrostreptomycin in milk by ELISA
RIDASCREEN SET total, Order No.: R4105, r-Biopharm, Darmstadt 2016-10	Detection of staphylococcal enterotoxins (A-E) in foodstuffs and bacterial cultures by sandwich immunoassay

2.4 Microbiological examinations

2.4.1 Determination of pathogenic bacteria in foodstuffs, environmental samples from the food sector (production and handling) by cultural microbiological examinations **

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.
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
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 (ISO 6888-3:2003)
DIN EN ISO 11290-1 2017-09	Microbiology of the food chain - Horizontal method for the detection and enumeration of Listeria monocytogenes and of Listeria spp. - Part 1: Detection method

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DIN EN ISO 11290-2 2017-09	Microbiology of the food chain - Horizontal method for the detection and enumeration of <i>Listeria monocytogenes</i> and of <i>Listeria</i> spp. - Part 2: Enumeration method
DIN EN ISO 22964 2017-08	Microbiology of the food chain - Horizontal method for the detection of <i>Cronobacter</i> spp.
ASU L 00.00-33 2006-09	Examination of foodstuffs - Horizontal method for the enumeration of presumptive <i>Bacillus cereus</i> - Colony count at 30°C
ASU L 00.00-57 2006-12	Examination of foodstuffs - Horizontal method for the enumeration of <i>Clostridium perfringens</i> in foodstuffs - Colony count method
ASU L 00.00-108 2007-04	Examination of foodstuffs - Horizontal method for the determination of low counts of presumptive <i>Bacillus cereus</i> in foodstuffs - Most probable number (MPN) and detection method
ASU L 01.00-72 2011-01	Examination of foodstuffs - Determination of presumptive <i>Bacillus cereus</i> in milk and dairy products - Colony count at 37°C
MUVA-MET615 2016-05	Detection of salmonellae in foodstuffs, animal feed, and environmental samples - Quick method with Rappaport-Vassiliadis (MSRV)-culture media
MUVA-MET643 2014-04	Detection of <i>Clostridium perfringens</i> by enrichment process (TPGY-Bouillon/egg yolk-lactose-agar)

2.4.2 Determination of bacteria, yeasts, and moulds in foodstuffs, environmental samples from the food sector (production and handling) by cultural microbiological examinations

2.4.2.1 Preparation of samples and production of initial suspensions and decimal dilutions for microbiological examinations *

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
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DIN EN ISO 6887-4 2017-07	Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 4: Specific rules for the preparation of miscellaneous products
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

2.4.2.2 Determination of bacteria, yeasts, and moulds by cultural microbiological examinations in dairy auxiliary materials and foodstuffs **

DIN EN ISO 21528-1 2017-09	Microbiology of the food chain - Horizontal method for the detection and enumeration of Enterobacteriaceae - Part 1: Detection of Enterobacteriaceae (<i>ISO 21528-1:2017</i>)
DIN EN ISO 21528-2 2017-09	Microbiology of the food chain - Horizontal method for the detection and enumeration of Enterobacteriaceae - Part 2: Colony-count technique (<i>ISO 21528-2:2017</i>)
ISO 4831 2006-08	Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of coliforms - Most probable number technique
ISO 13559 2002-11	Butter, fermented milks and fresh cheese - Enumeration of contaminating microorganisms - Colony-count technique at 30 °C
ISO 15213 (E) 2003-05	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of sulphite-reducing bacteria growing under anaerobic conditions
ISO 15214 1998-08	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of mesophilic lactic acid bacteria - Colony-count technique at 30 °C
ISO 16649-2 2001-04	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of β -glucuronidase-positive <i>Escherichia coli</i> - Part 2: Colony-count technique at 44 °C using 5-bromo-4-chloro-3-indolyl β -D-glucuronide
ISO 17410 2019-07	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of psychrotrophic microorganisms

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ISO 17410 Annex B 2019-07	Rapid test for the determination of psychrotrophic microorganisms in raw milk and pasteurised milk
ISO 21527-1 2008-07	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 1: Colony count technique in products with water activity greater than 0,95
ISO 21527-2 2008-07	Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of yeasts and moulds - Part 2: Colony count technique in products with water activity less than or equal to 0,95
ISO 29981 2010-02	Milk products - Enumeration of presumptive bifidobacteria - Colony count technique at 37 °C
DIN 10172-1 1992-04	Microbiological analysis of milk - Determination of coliforms - Method with liquid medium
ASU L 00.00-88/1 2015-06	Examination of foodstuffs - Horizontal method for the enumeration of microorganisms - Part 1: Colony Count at 30°C by pour plate technique <i>(adoption of the norm of the same name DIN EN ISO 4833-1, issue December 2013)</i>
ASU L 00.00-88/2 2015-06	Examination of foodstuffs - Horizontal method for the enumeration of microorganisms - Part 2: Colony Count at 30°C by surface plating technique <i>(adoption of the norm of the same name DIN EN ISO 4833-2, issue May 2014)</i>
ASU L 01.00-3 1987-03	Examination of foodstuffs - Determination of coliforms in milk, dairy products, butter, cheese, and ice cream; method with solid culture medium
ASU L 01.00-25 1997-09 With correction 2002-12	Examination of foodstuffs - Determination of Escherichia coli in milk, dairy products, butter, cheese, and ice cream; method with liquid culture medium
ASU L 01.00-37 1991-12	Examination of foodstuffs - Determination of the amount of yeasts and moulds in milk and dairy products (Reference method)
ASU L 06.00-18 1984-05	Examination of foodstuffs - Determination of the aerobic bacterial count at 30°C in meat and meat products - Spatula and pour plate method (Reference method)

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ASU L 06.00-35 1992-12	Examination of foodstuffs - Determination of aerobically growing lactic acid bacteria in meat and meat products - spread plate method (Reference method)
ASU L 42.00-3 1987-03	Examination of foodstuffs - Determination of bacterial count in ice cream - spread plate method
VDLUFA VI M 7.3.2 1985-01	Determination of proteolytic microorganisms (proteolytes) in milk, dairy products, infant and toddler food by pour plate method
VDLUFA VI M 7.6.2 1985-01	Determination of lipolytic microorganisms (lipolytes) in milk and dairy products by colony count method with tributyrin agar
VDLUFA VI M 7.8.2 2. supplement 1993	Determination of Enterococcus in milk and dairy products by spread plate method
VDLUFA VI M 7.9.3 1996	Determination of heterofermentative lactic acid bacteria in milk and dairy products by method with liquid culture media
VDLUFA VI M 7.11.2 1988	Determination of propionibacteria in hard cheese and dairy auxiliary material by spread plate method
VDLUFA M 7.12.2 1993	Determination of pseudomonades in dairy products and water by spread plate method
VDLUFA VI M 7.13 1996	Determination of thermoduric (thermoreistant) microorganisms in milk and dairy products by pour plate method
VDLUFA VI M 7.16.2 1985-01	Determination of acidifying microorganisms in milk and dairy products by pour plate method
VDLUFA VI M 7.16.3 2003	Enumeration and identification of characteristic yoghurt bacteria - Thermophilic streptococci in yoghurt and yoghurt products by spread plate method
VDLUFA VI M 7.16.3 2003	Enumeration and identification of characteristic yoghurt bacteria - Lactobacilli in yoghurt and yoghurt products by spread plate method
VDLUFA VI M 7.17.2 1993	Determination of spores of aerobic spore formers (Bacillus) in milk and dairy products by pour plate method
VDLUFA VI M 7.17.2 1993	Determination of spores of aerobic, thermophilic spore formers (Bacillus) in milk and dairy products by pour plate method

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VDLUFA VI M 7.18.2.1 1996	Determination of anaerobic gas-forming spore formers in milk and dairy products by MPN method
VDLUFA M 7.18.3.1 1996	Determination of cheese spoiling Clostridia in dairy products and dairy auxiliary materials by MPN method
VDLUFA VI M 7.18.4 1988	Determination of sulphite-reducing anaerobic spore formers in milk and dairy products by MPN method
DELVO test SP manufacturer's instructions 2014-12	Determination of inhibitory substances in milk and milk powder by DELVO test SP
MUVA-MET522 2018-01	Determination of coliforms in meat and meat products by pour plate method
MUVA-MET541 2011-07	Determination of gas-forming yeasts in milk, dairy products, and dairy auxiliary materials by titre method
MUVA-MET551 2011-07	Determination of mesophilic gas-forming streptococci in milk, dairy products, and dairy auxiliary materials by titre method
MUVA-MET552 2011-11	Enumeration of thermophilic microorganisms in milk and dairy products by pour plate method
MUVA-MET594_30 2016-06	Enumeration of microorganisms after incubation (15 days/30°C) in UHT and sterilized milk by pour plate method
MUVA-MET594_55 2016-06	Enumeration of microorganisms after incubation (7 days/55°C) in UHT and sterilized milk by pour plate method
MUVA-MET5b34 2016-11	Examination of foodstuffs - Horizontal method for the enumeration of mesophilic anaerobic microorganisms (ASU L 00.00-88/1 2015-06, modified)

2.5 Microbiological examinations on furniture and consumer goods in the environment of the food chain

DIN ISO 18593 2009-12	Microbiology of the food chain - Horizontal methods for surface sampling
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2.6 Performance testing of culture media

DIN EN ISO 11133 2018-07	Microbiology of food, animal feed and water - Preparation, production, storage and performance testing of culture media
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2.7 Molecular biological examinations in foodstuffs, animal feed and environmental samples in the food sector (production and handling)

2.7.1 Molecular biological detection of microorganisms in foodstuffs, animal feed and environmental samples in the food sector (production and handling) **

foodproof® *Listeria monocytogenes* bzw. foodproof® *Listeria Genus* Detection Kit
Biotecon Diagnostics
Order No. R30023 bzw. 30220
2017-09 bzw. 2017-03

Detection of *Listeria monocytogenes* and *Listeria* by real-time PCR

foodproof® *Salmonella* Detection Kit Hybridization bzw. 5'Nuclease
Biotecon Diagnostics
Order No. R31027 bzw. R30227
2017-03

Detection of *Salmonella* by real-time PCR

foodproof® Enterobacteriaceae plus *Cronobacter* Detection Kit
Biotecon Diagnostics
Order No. R31015.1
2017-09

Detection of *Enterobacter sakazakii* (*Cronobacter* spp.) by real-time PCR in foodstuffs

foodproof® *STEC Screening* LyoKit
Biotecon Diagnostics
Order No. R60211-1/R60211-2
2017-03

Detection of shiga-toxin producing *Escherichia coli* (STEC) by real-time PCR

Gene UP® *Cronobacter* (CRO)
Biomerieux REF 421920
2017-11

Detection of *Cronobacter* in foodstuffs, animal feed, and environmental samples

Gene UP® *Listeria* spp. 2 (LIS 2)
Biomerieux REF 423106
2018-06

Detection of *Listeria* in foodstuffs, animal feed, and environmental samples

Gene UP® *Salmonella* 2 (SLM 2)
Biomerieux REF 423105
2018-06

Detection of *Salmonella* in foodstuffs, animal feed, and environmental samples

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MUVA-MET640
2016-12
Microbiology of the food chain - Polymerase chain reaction (PCR) for the detection of pathogenic microorganisms in foodstuffs - detection of botulinum neurotoxin type A, B, E, and F producing clostridia

2.7.2 Molecular biological detection and determination of GMO in foodstuffs and animal feed *

foodproof® GMO *Screening 1*
LyoKit, Bioteccon Diagnostics
Order No. R 602 21-1 / R 602 21-2
2017-03
Detection of genetically modified organisms (GMO/GVO) by real-time PCR (35S; T-NOS; P-FMV)

foodproof® GMO *Screening 2*
LyoKit, Bioteccon Diagnostics
Order No. R 602 18-1 / R 602 18-2
2017-03
Detection of genetically modified organisms (GMO/GVO) by real-time PCR (bar; P-35-pat; CTP2-CP4-EPSPS; P-NOS-nptII; P-35-nptII)

foodproof® GMO RR Soya
Quantification Kit, Bioteccon
Diagnostics Order No. R 302 19
2017-03
Quantification of Roundup Ready 1 (GTS 40-3-2) soya by real-time PCR

foodproof® GMO RR 2
Yield Soya Quantification Kit
Bioteccon Diagnostics Order No. R
302 35
2017-03
Quantification of Roundup Ready 2 soya by real-time PCR

foodproof® SL GMO
A2704-12 Soya Detection Kit
Bioteccon Diagnostics Order No. Z
722 01
2015-07
Detection of A2704-12 soya by real-time PCR

GMO Quant
Event A2704-12 Soy
Eurofins Order No. 5125206801
2018-02
Quantification of A2704-12 soya by real-time PCR

GMO Ident RT Event TC1507 Corn
Eurofins Order No. 5421222401
2017-11
Detection of TC1507 corn by real-time PCR

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GMO Quant Event TC1507 Corn Eurofins Order No. 5125209301 2016-01	Quantification of TC1507 corn by real-time PCR
foodproof® SL GMO MON810 Maize Detection Kit Biotecon Diagnostics Order No. Z 720 03 2016-10	Detection of MON810 corn by real-time PCR
GMO Quant Event MON810 Corn Eurofins Order No. 5125207801 2017-12	Quantification of MON810 corn by real-time PCR
foodproof® SL GMO MON89034 Maize Detection Kit Biotecon Diagnostics Order No. Z 720 08 2018-04	Detection of MON89034 corn by real-time PCR
GMO Quant (LR) Event MON89034 Corn Eurofins Order No. 5125206701 2016-01	Quantification of MON89034 corn by real-time PCR
foodproof® SL GMO NK603 Maize Detection Kit Biotecon Diagnostics Order No. Z 720 09 2016-10	Detection of NK603 corn by real-time PCR
GMO Quant (LR) Event NK603 Corn Eurofins Order No. 5125204401 2018-01	Quantification of NK603 corn by real-time PCR
GMO Quant (LR) Event Bt11 Corn Eurofins Order No. 5125206501 2017-12	Quantification of Bt11 corn by real-time PCR
SureFood®GMO ID 4plex Canola I r-biopharm Art. Nr. S2166 2017-02	Detection of MS8/GT73/T45 rapeseed by real-time PCR

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GMO Quant (UMM) Event Rf3 Rapeseed Eurofins Order No. 5125209101 2018-05	Quantification of Rf3 rapeseed by real-time PCR
GMO Quant (UMM) Event T45 Rapeseed Eurofins Order No. 5125208401 2017-12	Quantification of T45 rapeseed by real-time PCR
GMO Quant (UMM) Event RT73 Rapeseed Eurofins Order No. 5125208901 2017-12	Quantification of RT73 (GT73) rapeseed by real-time PCR
Quant (UMM) Event MS8 Rapeseed Eurofins Order No. 5125209001 2017-09	Quantification of MS8 rapeseed by real-time PCR
GMO Screen RT (UMM) Cry1Ab/Ac Eurofins Order No. 5421225201 2018-07	Detection of Cry1Ab/Ac by real-time PCR
foodproof® Soya Detection Kit- Version 1, Bioteccon Diagnostics 2014-10	Quantification of soya mass by real-time PCR
GMO Ident RT Event A5547-127 Soy Eurofins Order No. 5421223701 2018-07	Detection of A5547-127 soya by real-time PCR
GMO Quant (UMM) Event A5547- 127 Soy Eurofins Order No. 5125220601 2017-10	Quantification of A5547-127 soya by real-time PCR

2.7.3 Molecular biological genome analysis of bovine somatic milk cells

MUVA-MET651 2018-01	Typing of bovine beta-casein genome (A1/A2) in milk by real-time PCR
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2.8 Identification of microorganisms by FTIR spectroscopy

MUVA-MET5b07 Identification of bacteria and yeasts by FTIR spectroscopy
2015-06

2.9 Identification of microorganisms by MALDI-TOF mass spectroscopy

MUVA-MET645 Identification of bacteria and yeasts by MALDI-TOF mass
2017-04 spectroscopy

2.10 Sensory examination of foodstuffs **

DIN EN ISO 4120 Sensory analysis - Methodology - Triangle test
2007-10

DIN EN ISO 5495 Sensory analysis - Methodology - Paired comparison test
2007-10

DIN EN ISO 13299 Sensory analysis - Methodology - General guidance for establishing
2016-09 a sensory profile (*ISO 13299:2016*)

DIN ISO 8587 Sensory analysis - Methodology - Ranking
2010-08

DIN ISO 22935-3 Milk and milk products - Sensory analysis - Part 3: Guidance on a
2012-12 method for evaluation of compliance with product specifications
for sensory properties by scoring (*ISO 22935-3:2009*)

DIN 10964 Sensory analysis - Simple descriptive test
2014-11

DIN 10973 Sensory analysis - In/out test
2013-06

DIN 10975 Sensory analysis - Expert witness for the judgement of conformity
2005-04 with foodlaw

DLG 5-point-scheme[®] Sensory analysis of butter, butter preparations, dairy spreads and
9. edition 2019 dairy spread preparations according to DLG 5-point-schemes[®]

DLG 5-point-scheme[®] Sensory analysis of cheese, cream cheese, processed cheese, and
9. edition 2019 other cheese preparations as well as convenience cheese
according to DLG 5-point-schemes[®]

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DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of milk, milk powder, and other milk powder preparations, cream, whipped cream, spray cream, and milk foam according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of other milk and dessert products as well as dairy drinks, sour dairy products, dessert preparations, condensed milk, coffee cream, and ice cream according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Visual examination (flocculation) of coffee cream and condensed milk cream according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Visual examination (whey drainage) of cream cheese and cream cheese preparations according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of corned beef, beef, and pork preserved in its own juice according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of boiled ham, salt meat, roast, and tongue according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of cooked sausage, cooked sausage pastries, aspic i. a. according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of raw sausage (cuttable and spreadable) according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of raw ham, rolled filet of ham, bacon, and smoked meat according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of lard according to DLG 5-point-schemes [®]
DLG 5-point-scheme [®] 9. edition 2019	Sensory analysis of boiled sausage, boiled sausage pastries, meat loaf, and filled products according to DLG 5-point-schemes [®]
MUVA-MET723 2018-01	Sensory analysis of rapeseed oil
MUVA-MET724 2019-12	Sensory analysis of cheese, cream cheese, processed cheese, and processed cheese preparations by points score
MUVA-MET725 2019-12	Sensory analysis of drinking milk by points score
MUVA-MET726 2019-12	Sensory analysis of other dairy products and desserts by points score

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DIN 10955 2004-06	Sensory analysis - Testing of packaging materials and packages for foodstuffs
DIN 55534 2006-08	Testing of taste transfer from packages and packaging materials through the head space using water as the test medium

4 Test methods in accordance with the German Drinking Water Ordinance - TrinkwV

Sampling

Method	Title
DIN EN ISO 5667-1 (A 4) 2007-04	Water quality - Sampling - Part 1: Guidance on the design of sampling programmes and sampling techniques
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
Method	Title
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
Recommendation of the Federal Environment Agency 18 th December 2018	Evaluation of the quality of drinking water with regard to the parameters lead, copper, and nickel

ANNEX 1: MICROBIOLOGICAL PARAMETERS

PART I: General requirements for drinking water

Ser. no.	Parameter	Method
1	Escherichia coli (E. coli)	DIN EN ISO 9308-1 (K 12) 2017-09
		DIN EN ISO 9308-2 (K 6-1) 2014-06
2	Enterococci	DIN EN ISO 7899-2 (K 15) 2000-11

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

Ser. no.	Parameter	Method
1	Escherichia coli (E. coli)	DIN EN ISO 9308-1 (K 12) 2017-09
		DIN EN ISO 9308-2 (K 6-1) 2014-06
2	Enterococci	DIN EN ISO 7899-2 (K 15) 2000-11
3	Pseudomonas aeruginosa	DIN EN ISO 16266 (K 11) 2008-05

ANNEX 2: CHEMICAL PARAMETERS

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

Ser. no.	Parameter	Method
1	Acrylamide	not covered
2	Benzene	DIN 38407-F 43 2014-10
3	Boron	DIN EN ISO 17294-2 (E 29) 2017-01
4	Bromate	MUVA-MET491 2020-01
5	Chromium	DIN EN ISO 17294-2 (E 29) 2017-01
6	Cyanide	DIN 38405-D 13 2011-04
7	1,2-dichlorethane	DIN 38407-F 43 2014-10
8	Fluoride	DIN 38405-D 4 1985-07 DIN EN ISO 10304-1:2009-07 (D 20)
9	Nitrate	DIN 38405-D 9 2011-09 DIN EN ISO 10304-1:2009-07 (D 20)
10	Pesticide active ingredients and biocide active ingredients	DIN EN ISO 11369 (F 12) 1997-11 deviation: measurement by LC-MS/MS
11	Total pesticide active ingredients and biocide active ingredients	DIN EN ISO 11369 (F 12) 1997-11 deviation: measurement by LC-MS/MS
12	Mercury	DIN EN ISO 17294-2 (E 29) 2017-01
13	Selenium	DIN EN ISO 17294-2 (E 29) 2017-01
14	Tetrachloroethene and trichloroethene	DIN EN ISO 10301 (F 4) 1997-08
15	Uranium	DIN EN ISO 17294-2 (E 29) 2017-01

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

Ser. no.	Parameter	Method
1	Antimony	DIN EN ISO 17294-2 (E 29) 2017-01
2	Arsenic	DIN EN ISO 17294-2 (E 29) 2017-01
3	Benzo-(a)-pyrene	MUVA-MET448 GC-MS 2016-07
4	Lead	DIN EN ISO 17294-2 (E 29) 2017-01
5	Cadmium	DIN EN ISO 17294-2 (E 29) 2017-01
6	Epichlorohydrin	not covered
7	Copper	DIN EN ISO 17294-2 (E 29) 2017-01
8	Nickel	DIN EN ISO 17294-2 (E 29) 2017-01
9	Nitrite	DIN EN 26777 (D 10) 1993-04 DIN EN ISO 10304-1:2009-07 (D 20)
10	Polycyclic aromatic hydrocarbons (PAH)	MUVA-MET448 GC-MS 2016-07
11	Trihalomethanes (THM)	DIN EN ISO 10301 (F 4) 1997-08
12	Vinyl chloride	not covered

ANNEX 3: INDICATOR PARAMETERS

PART I: General indicator parameters

Ser. no.	Parameter	Method
1	Aluminium	DIN EN ISO 17294-2 (E 29) 2017-01
2	Ammonium	DIN 38406-E 5 1983-10
3	Chloride	DIN 38405-D 1 1985-12 DIN EN ISO 10304-1:2009-07 (D 20)
4	Clostridium perfringens (incl. spores)	DIN EN ISO 14189 (K 24) 2016-11
5	Coliform bacteria	DIN EN ISO 9308-1 (K 12) 2017-09
6	Iron	DIN EN ISO 17294-2 (E 29) 2017-01
7	Colour (spectral absorption coefficient Hg 436 nm)	DIN EN ISO 7887 (C 1) 2012-04
8	Odour (as TON)	DIN EN 1622 (B 3) 2006-10
9	Taste	DIN EN 1622 (B 3) 2006-10
10	Colony count at 22 °C	DIN EN ISO 6222 (K 5) 1999-07 TrinkwV §15 paragraph (1c)
11	Colony count at 36 °C	DIN EN ISO 6222 (K 5) 1999-07 TrinkwV §15 paragraph (1c)
12	Conductivity	DIN EN 27888 (C 8) 1993-11
13	Manganese	DIN EN ISO 17294-2 (E 29) 2017-01
14	Sodium	DIN EN ISO 17294-2 (E 29) 2017-01
15	Total organic carbon (TOC)	not covered
16	Oxidisability	DIN EN ISO 8467 (H 5) 1995-05
17	Sulphate	DIN 38405-D 5 1985-01 DIN EN ISO 10304-1:2009-07 (D 20)
18	Turbidity	DIN EN ISO 7027-1: 2016-11 (C 2)
19	Hydrogen ion concentration	DIN EN ISO 10523 (C 5) 2012-04
20	Calcite dissolution capacity	DIN 38404-C 10 2012-12

PART II: Specific requirements for drinking water in drinking water installations

Parameter	Method
Legionella spec.	ISO 11731 2017-05 UBA recommendation 18 th December 2018

ANNEX 3a: Requirements for drinking water regarding radioactive substances

Not covered

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

Further periodic examinations

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

Additional parameters	Method
Free chlorine, total chlorine, bound chlorine	Machery-Nagel GmbH&Co.KG visocolor®ECO Chlor 2 Order No.: 931015 2016-04 (DIN EN ISO 7393-2 (G4-2) 2000-04)
Total hardness	DIN 38409 H 6 1986-01

The accreditation does not replace the recognition or approval process of the responsible authority according to § 15 paragraph (4) TrinkwV.

5 Sampling and microbiological analysis of industrial water according to §3 paragraph 8 42. BImSchV

Sampling

Method	Title
DIN EN ISO 19458 (K 19) 2006-12	Water quality - Sampling for microbiological analysis Recommendation of the Federal Environmental Agency for the sampling and detection of Legionella in evaporative cooling systems, cooling towers, and wet separators of 6 th March 2020, sections C and D

Microbiological analysis

Parameter	Method
Legionella	DIN EN ISO 11731 (K 23) 2019-03 Recommendation of the Federal Environment Agency for the sampling and detection of legionella in evaporative cooling systems, cooling towers, and wet separators of 6 th March 2020, sections E and F including annexes 1 and 2

Parameter	Method
Colony count at 22°C and 36 °C	DIN EN ISO 6222 (K 5) 1999-07

6 LIST OF TEST METHODS OF THE LEGISLATIVE ENVIRONMENTAL MODUL WATER
Revision: LAWA 13.11.2015

Section 1: Sampling and general parameters

Not covered

Section 2: Photometry, ion chromatography, dimensional analysis

Parameter	Method	Waw	Suw	Grw
UV absorption at 254 nm (SAK 254)	DIN 38404-C 3: 2005-07		<input type="checkbox"/>	<input checked="" type="checkbox"/>
UV absorption at 436 nm (SAK 436)	DIN EN ISO 7887: 2012-09 (C 1)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ammonia nitrogen	DIN EN ISO 11732: 2005-05 (E 23)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 5: 1983-10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)		<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrite nitrogen	DIN EN 26777: 1993-04 (D 10)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 10304-1: 2009-07 (D 20)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 13395: 1996-12 (D 28)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nitrate nitrogen	DIN EN ISO 10304-1: 2009-07 (D 20)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 13395: 1996-12 (D 28)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38405-D 9: 2011-09	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN 38405-D 29: 1994-11		<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total phosphorus	DIN EN ISO 6878: 2004-09 (D 11)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15681-1: 2005-05 (D 45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 15681-2: 2005-05 (D 46)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Orthophosphate	DIN EN ISO 10304-1: 2009-07 (D 20)		<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 6878: 2004-09 (D 11)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15681-1: 2004-07 (D 45)		<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 15681-2: 2005-05 (D 46)		<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)		<input type="checkbox"/>	<input type="checkbox"/>
Fluoride (dissolved)	DIN 38405-D 4, section 1985-07	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 10304-1: 2009-07 (D 20)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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Parameter	Method	Waw	Suw	Grw
Chloride	DIN EN ISO 10304-1: 2009-07 (D 20)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15682: 2002-01 (D 31)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 10304-4: 1999-07 (D 25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38405-D 1: 1985-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sulphate	DIN EN ISO 10304-1: 2009-07 (D 20)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN 38405-D 5: 1985-01	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN ISO 15923-1: 2014-07 (D 49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyanide (easily released)	DIN 38405-D 13-2: 1981-02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14403-1: 2012-10 (D 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14403-2: 2012-10 (D 3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38405-D 7: 2002-04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cyanide (total)	DIN 38405-D 13-2: 1981-02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14403-1: 2012-10 (D 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14403-2: 2012-10 (D 3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38405-D 7: 2002-04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium VI	DIN 38405-D 24: 1987-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 10304-3: 1997-11 (D 22), Abschn. 6 (dissolved chromate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 23913: 2009-09 (D 41)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 18412: 2007-02 (D 40)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulphide (easily released)	DIN 38405-D 27: 1992-07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 3: Elemental analysis

Parameter	Method	Waw	Suw	Grw
Aluminium	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 12020: 2000-05 (E 25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arsenic	DIN EN ISO 11969: 1996-11 (D 18)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	DIN 38405-D 35: 2004-09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 6: 1998-07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Parameter	Method	Waw	Suw	Grw
Cadmium	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 5961: 1995-05 (E 19)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02(E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calcium	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 3: 2002-03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 7980: 2000-07 (E 3a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chromium	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN 1233: 1996-08 (E 10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Iron	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 32: 2000-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 1: 1983-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E29), with collision cell	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Potassium	DIN 38406-E 13: 1992-07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Copper	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 7: 1991-09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manganese	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN 38406-E 33: 2000-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sodium	DIN 38406-E 14: 1992-07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nickel	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 11: 1991-09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Parameter	Method	Waw	Suw	Grw
Mercury	DIN EN 1483: 2007-07 (E 12)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO17852: 2008-04 (E 35)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 12846: 2012-08 (E 12)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zinc	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 8: 2004-10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 15586: 2004-02 (E 4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boron	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Magnesium	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38406-E 3: 2002-03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 7980: 2000-07 (E 3a)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 14911: 1999-12 (E 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phosphorus (phosphorus compounds in the original sample as phosphorus)	DIN EN ISO 11885: 2009-09 (E 22)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 17294-2: 2005-02 (E 29)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 4/5: Group and sum parameters

Parameter	Method	Waw	Suw	Grw
Biological oxygen demand (BSB ₅)	DIN EN 1899-1: 1998-05 (H 51)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN 1899-2: 1998-05 (H 52)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical oxygen demand (CSB)	DIN 38409-H 41: 1980-12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38409-H 44: 1992-05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN ISO 15705: 2003-01 (H 45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phenol index	DIN 38409-H 16-2: 1984-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38409-H 16-1: 1984-06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 14402: 1999-12 (H 37)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Method according to section 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filterable substances	DIN EN 872: 2005-04 (H 33)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38409-H 2-3: 1987-03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acid and base substances	DIN 38409-H 7: 2005-12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total organic carbon (TOC)	DIN EN 1484: 1997-08 (H 3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dissolved organic carbon (DOC)	DIN EN 1484: 1997-08 (H 3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Total bound nitrogen (TN _b)	DIN EN 12260: 2003-12 (H 34)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN EN ISO 11905-1: 1998-08 (H 36)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adsorbable organic halogens (AOX)	DIN EN ISO 9562: 2005-02 (H 14)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	DIN 38409-H 22: 2001-02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 6: Gas chromatographic methods

Not covered

Valid from: 16.12.2020

Date of issue: 19.03.2021

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Section 7: HPLC methods

Not covered

Section 8: Microbiological methods

Parameter	Method	Waw	Suw	Grw
Colony count	DIN EN ISO 6222: 1999-07 (K 5)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Total coliform count	DIN EN ISO 9308-2: 2014-09 (K 6-1) in combination with		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 9308-1: 2014-09 (K 12)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Faecal coliform count	DIN EN ISO 9308-1: 2001-07 (K 12)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 9308-3: 1999-07 (K 13)		<input type="checkbox"/>	<input type="checkbox"/>
Intestinal enterococci	DIN EN ISO 7899-2: 2000-11 (K 15)		<input type="checkbox"/>	<input checked="" type="checkbox"/>
	DIN EN ISO 7899-1: 1999-07 (K 14)		<input type="checkbox"/>	<input type="checkbox"/>

Section 9.1: Biological methods, biotests (part 1)

Not covered

Section 9.2: Biological methods, biotests (part 2)

Not covered

Abbreviations used:

ADPI	American Dry Products Institute
ASU	Official collection of analysis methods according to § 64 of the German Food and Feed Code (LFGB)
BGVV	Federal Institute for Consumer Health Protection and Veterinary Medicine
DAB	German Pharmacopoeia
DEV	German standard methods for the examination of water, waste water and sludge
DFG	German Research Foundation
DGF	German Society for Fat Science
DIN	German Institute for Standardisation
DLG	German Agricultural Society
DVGW	German Association for gas and water applications
DMA	Direct Mercury Analyzer
EG	European Community
EN	European norm
EUP	European Pharmacopoeia
IDF	International Dairy Federation
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
IVV	Fraunhofer Institute for process engineering and packaging
MUVA-MET	Method documentation, including in-house method, of muva kempten GmbH
SLMB	Swiss Book of Foodstuffs
TrinkwV	Drinking Water Ordinance
UBA	Federal Environment Agency
USP	United States Pharmacopoeia (US drug and device regulations)
VDI	Association of German Engineers
VDLUFA	Association of German Agricultural Analytic and Research Institutes
VO	Regulation