

Deutsche Akkreditierungsstelle GmbH

Annex of the Accreditation Certificate D-PL-14508-01-00 in accordance with DIN EN ISO/IEC 17025:2018

Valid from: 09 December 2020
Issue date: 05 February 2021

Holder of the certificate:

Quality Services International GmbH
Flughafendamm 9 a, 28199 Bremen, Germany

Tests in the following fields:

**sensory, physical, physico-chemical, chemical, immunological, microscopic and molecular-biological testing of honey, food;
sensory, chemical, chemo-physical, physical and microscopic testing of pharmaceutical raw materials; selected microbiological testing of furniture, equipment and commodities in food production; selected physical, physico-chemical and chemical testing of organic substances**

Within the testing fields marked with *, the laboratory is permitted to choose freely among standardised and equivalent testing methods, without being required to inform and obtain prior approval from DAkkS.

Within the testing fields marked with **, the laboratory is permitted to modify testing methods, develop them further or develop new ones, without being required to inform and obtain prior approval from DAkkS.

Within the fields of accreditation marked with *, the laboratory is permitted to apply the standardised testing methods listed here or those equivalent to them using different versions, without being required to inform and obtain prior approval from DAkkS.**

The requirements regarding the management system in DIN EN ISO/IEC 17025 are written in a language relevant for testing laboratories and are overall in accordance with the principles of DIN EN ISO 9001.

The Certificate including the Annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of the Deutsche Akkreditierungsstelle GmbH (DAkkS) <https://www.dakks.de/content/datenbank-akkreditierter-stellen>

Abbreviations used: see last page

The testing methods listed are exemplary. The testing laboratory has an up-to-date list of all testing methods in the flexible accreditation area.

1. Testing of food**1.1 Sensory testing and determination of appearance, smell, taste and consistency of foods***

ASU L 00.90-6 2015-06	Food analysis – sensory testing methods – simple descriptive testing (deviation: <i>room climate: temperature specification only</i>)
ASU L 00.90-7 2007-12	Sensory analysis – testing methods – triangular test
ASU L 00.90-8 2007-12	Sensory analysis – testing methods – comparative testing performed on product pairs
ASU L 00.90-11/1 2002-05	Food analysis – sensory testing methods – profile testing – part 1: conventional profile (deviation: <i>specification of characteristics</i>)
ASU L 00.90-17 2015-06	Food analysis – sensory testing methods - In/out tests
ASU L 00.90-20 2010-09	Food analysis – sensory testing methods – consumer tests
VA 346 2015-11	Sensory analysis, tasting of food according to a test scheme

1.2 Physical, physico-chemical and chemical analyses**1.2.1 Gravimetric determination of ingredients and minerals in foods ****

DIN 10743 2013-05	Testing of honey – determination of the content of water-insoluble substances
ASU L 22.02/04-4 2010-09	Testing of food– determination of the dry matter content of dry pasta
ASU L 31.00-4 1997-01	Food analysis – determination of the ash content of fruit and vegetable juices

ASU L 40.00-4 2003-12	Food analysis – testing of honey - determination of the ash
ASU L 46.01-3 2007-04	Food analysis – determination of the mass loss of green coffee at 105°C (deviation: <i>individual testing</i>)
ASU L 46.02-2 1987-06	Food analysis; determination of water-soluble extract content; method for roasted coffee (deviation: weighed portion of 30 g)
ASU L 46.02-6 2004-07	Food analysis – determination of the mass loss of ground roasted coffee at 103°C (routine method)
ASU L 46.03-9 2007-04	Food analysis – determination of the mass loss of coffee extract – air oven method at normal pressure (routine method)
ASU L 47.00-1 1992-06	Food analysis; determination of the mass loss of unground tea at 103°C (deviation: <i>individual testing</i>)
ASU L 47.00-3 1989-12	Food analysis; testing of tea; determination of the total ash (deviation: <i>individual testing</i>)
ASU L 47.00-4 2000-07	Food analysis - testing of tea - determination of the water extract (deviation: <i>performed in individual testing and without sieving</i>)
ASU L 47.00-5 1985-12	Food analysis - testing of tea - determination of the acid-insoluble ash (deviation: <i>individual testing</i>)
DGF C-III 11a 1984	German standard methods for testing of fats, fat products, tensides and related substances – fats – determination of the major and minor components – insoluble contaminants
DGF C-III 11b 1984	German standard methods for testing of fats, fat products, tensides and related substances – fats – determination of the major and minor components – insoluble contaminants (inorganic proportion)
DGF C-III 12 1997	German standard methods for testing of fats, fat products, tensides and related substances – fats – determination of the major and minor components

– total	volatile matter
DGF M-V 6 1957-03	Total hydrocarbons in wax
ICUMSA GS 2/3-19 2003-07	The Determination of Insoluble Matter in White Sugar by Membrane Filtration - Official
NMX-F-607-NORMEX 2013	Determination of ash content of agave syrup
FertigPackV, Anlage 4a last amended 11.12.2014	Ordinance on prepackaging (prepackaging ordinance), method for checking the filling quantities of prepackages labelled by weight or volume
Ph. Eur. 2.8.16 9 th issue 2017-12	Dry residue of extracts
Ph. Eur. 2.8.17 9 th issue 2017-12	Loss of mass of extracts by drying
VA 1029 2018-03	Gravimetric determination of the bulk weight of powdered food
VA 25302 2019-11	Determination of dry-matter content of fatty food at 103°C (seasand method)
VA 25305 2017-11	Gravimetric determination of the loss of mass by drying, vacuum-drying method, air-oven method
VA 25331 2018-01	Determination of the loss of mass by drying, capacitive rapid testing method green coffee
VA 25350 2019-06	Determination of the ash content of food
VA 25416 2019-04	Gravimetric determination of the ethanol-soluble components of propolis

VA 25417 2019-04	Gravimetric determination of the ethanol-insoluble components of propolis
VA 25418 2017-03	Gravimetric determination of the proportion of wax in propolis after extraction
VA 31000 2019-05	Gravimetric determination of the broken rice content of rice and brown rice

1.2.2 Determination of food parameters and ingredients by means of titrimetric analysis*

ASU L 13.00-39 2010-01	Food analysis – determination of the water content of animal and plant-based fats and oils – Karl-Fischer method
ASU L 40.00-6 1996-02	Food analysis – testing of honey - determination of the free acidity content (deviation: <i>weighed portion</i>)
ASU L 46.02-1 2013-08	Food analysis –determination of the water content of roasted coffee acc. to Karl Fischer; reference method (deviation: <i>weighed portion, direct titration under reflux cooling</i>)
ASU L 46.02-3 1987-11	Food analysis; determination of the pH and acidity levels; method for roasted coffee
ASU L 46.03-4 1999-11	Determination of the pH and acidity levels; method for coffee extract
DGF C-III 4 2006	German standard methods for testing of fats, fat products, tensides and related substances – fats – determination of the major and minor components – free fatty acids

1.2.3 Refractometric determination of ingredients of honey, fruit and vegetable products*

ASU L 30.00-2(EG) 1993-08	Food analysis – refractometer method for the determination of the content of soluble dryer in processed fruit and vegetables
ASU L 40.00-2 1992-12	Food analysis; testing of honey; determination of the water content; refractometer method

1.2.4 Detection of ingredients by means of wet chemical analysis in honey

VA 190 2020-02	Detection of foreign dextrins, Fellenberg method (wet chemical)
VA 191 2019-11	Detection of foreign dextrins, Fiehe method (wet chemical)

1.2.5 Determination of the water activity in food by means of hygrometric tests

VA 25340 2019-05	Determination of the water activity (aw-value) in food, hygrometric
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1.2.6 Determination of the content of essential oils by means of distillation in spices, seasoning ingredients and herbs ***

DIN EN ISO 6571 2009-11	Spices, seasoning ingredients and herbs - determination of the essential oil content (steam distillation method)
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1.2.7 Determination of the optical rotatory power by means of polarimetry in sugar***

RL 79/796/EWG Annex 2, method 10 last amended 26/07/1979	Guideline for the determination of joint analysis methods for testing sugars intended for human consumption, determination of the optical rotatory power (polarisation) of semi-white sugar, sugar or refined sugar or refined white sugar
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1.2.8 Determination of the pour point by means of thermal analyses of fats and oils ***

DIN 53662 1947-09	Determination of the pour point, thermometer
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1.2.9 Determination of the thixotropy of honey by means of viscometric tests

VA 149 2020-03	Determination of the thixotropy, viscometric
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1.2.10 Determination of the colour and quality of honey, fats and oils by means of colourimetry **

VA 192 Colour determination (Hanna colorimeter), colorimetric; honey
2018-02

1.2.11 Determination of the flowability and grain size distribution by means of sieve analysis of sugar and powdered foods

VA 1033 Sieve analysis, (15 min., amplitude 30), sieve 300 - 280 µm; coffee
2015-11

VA 25344 Sieve analysis, (5 min., amplitude 30), sieve 1400 - 250 µm; sugar
2017-03

VA 25355 Sieve analysis, (15 min., amplitude 30), sieve 710 - 180 µm; coffee
2015-09

1.2.12 Determination of conductivity, conductivity ash and pH level in honey and sugar by means of potentiometric tests *

ASU L 40.00-5 Food analysis - testing of honey –
2003-12 determination of the electric conductivity
(deviation: *weighed portion*)

NMX-F-317-NORMEX Determination of the pH level of agave syrup
2013

ICUMSA GS1/3/4/7/8-13 Determination of conductivity and conductivity ash,
1994-04 electrometric; sugar

ICUMSA GS1/2/3/4/7/8/9-23 Determination of the pH level, electrometric; sugar
2009-11

1.2.13 Photometric determination of ingredients and adulteration of food **

ASU L 40.00-1 Food analysis - determination of the diastase activity in honey
2010-01 (deviation: *weighed portion and buffer quantity; adaptation to random access analyser*)

ASU L 40.00-3 Food analysis - testing of honey - determination of the proline content of
2003-12 honey
(deviation: *miniaturised feedthrough in a well plate*)

ASU L 40.00-8/1 2018-10	Food analysis - testing of honey – determination of the saccharase activity – Part 1: Siegenthaler method (deviation: <i>weighed portion and buffer quantity; adaptation to random-access analyser</i>)
ASU L 40.00-10/1 2012-01	Testing of honey - determination of the hydroxymethylfurfural content. Part 1: Winkler photometric method
ASU L 40.00-12 2006-09	Testing of honey - determination of the ethanol content – enzymatic method (deviation: <i>adaptation to random-access analyser</i>)
ASU L 40.00-13 2006-09	Testing of honey; determination of the glycerine content – enzymatic method (deviation: <i>adaptation to random-access analyser</i>)
ASTA 12.1 2007-01	Piperine content of pepper and pepper oleoresins, photometric
ASTA 18.0 2004-10	Curcumin content of curcuma, photometric
ASTA 20.1 2004-10	Colour value of paprika and oleo resins, photometric
Codex Alimentarius Commission CAC RM 1/8-1969 Method 6	Determination of colour, sugar, photometric
ThermoFisher Scientific D-GLUCOSE/D-Fructose REF: 984302/984304 2017-07	Photometric detection of glucose/fructose in homogeneous liquid samples by means of a random-access analyser
Syva Emit Caffeine Assay Siemens REF: 6P419UL Ident.no. 10870642_E 2015-03	Enzyme-immunoassay for the quantitative determination of caffeine concentrations, application for decaffeinated green and roasted coffee
r-biopharm No. 10139076035 2013-03	UV test to determine the citric acid content of food and other sample materials (deviation: <i>adaptation to random-access analyser</i>)

r-biopharm No. 10148270035 2013-03	UV test to determine the glycerine content of food and other sample material (deviation: <i>adaptation to random access analyser</i>)
r-biopharm No. 10979732035 2013-03	UV test to determine the formic acid content of food and other sample materials (deviation: <i>adaptation to random access analyser</i>)
r-biopharm No. E2100 2012-06	UV test to determine the oxalic acid content of food (deviation: <i>adaptation to random access analyser</i>)
VA 134 2019-06	Determination of the diastase (a-amylase) activity in honey, nitrophenol method, enzymatics
VA 146 2019-06	Diastase activity according to Phadebas®, honey
VA 948 2018-04	Determination of flavonoids, propolis, propolis products, photometric detection after ethanolic extraction
VA 27000 2019-12	Determination of the glucose, fructose, saccharose, maltose, galactose, lactose content of food
VA 40280 2020-04	Determination of the (non-honey) thermostable diastase activity, photometric; honey
VA 40282 2019-04	Determination of the non-honey alpha-amylase activity (FAmyP), photometric, honey

1.2.14 Determination of ingredients, additives and contaminants in food by means of high-performance liquid chromatography (HPLC) with standard detectors (UV-Vis, RI, Fluorescence, PAD and ELSD) **

ISO 24114 2011-04	Instant coffee – authenticity criteria
ASU L 00.00-9 1984-11	Food analysis; determination of preservatives in low-fat foods
ASU L 40.00-7 1999-11	Analysis of honey – determination of the saccharide, fructose, glucose, saccharose, turanose and maltose content; HPLC-method (deviation: <i>extraction, HPLC-conditions, further analytes</i>)

ASU L 40.00-10/3 2019-07	Food analysis - testing of honey - determination of the hydroxymethylfurfural content; high-performance liquid chromatography (deviation: <i>weighed portion + purification with Carrez reagents, HPLC-conditions</i>)
ASU L 45.00-1 1999-11	Food analysis - determination of theobromine and caffeine in cocoa
ASU L 46.00-2 2018-10	Testing of coffee and coffee products; determination of the chlorogenic acid content, HPLC
ASU L 46.00-3 2000-07	Food analysis - testing of coffee and coffee products – determination of the caffeine content; HPLC-method (deviation: <i>different HPLC-conditions</i>)
ASU L 47.00-6 2014-02	Food analysis – testing of tea and solid tea extract - determination of the caffeine content; HPLC-method (deviation: <i>different HPLC-conditions</i>)
VA 157 2018-11	Determination of the methyl anthranilate content, HPLC method in honey
VA 166 2018-11	Sugar spectrum, HPLC method in foods
VA 14250 2020-01	Analysis of the cannabinoid profile in hemp products (solid), HPLC-UV
VA 14251 2019-12	Analysis of the cannabinoid profile in liquids, HPLC-UV
VA 14252 2019-11	Analysis of the cannabinoid profile in oil, HPLC-UV
VA 31910 2017-12	Determination of the 10-hydroxy-2-decenoic acid (10-HDA) content, HPLC method in royal jelly
VA 40255 2019-08	Detection of the adulteration marker psicose, HPLC-ELSD, honey
VA 40275 2020-01	Determination of the β -fructofuranosidase activity (non-honey saccharase) in honey
VA 40286 2020-04	Determination of the β - and γ -amylase activity (non-honey diastase), HPLC UV in honey

VA 40290 2019-07	Testing of honey; detection of oligosaccharides, HPLC-ECD method in honey
1.2.15	Determination of ingredients, additives, contaminants and pharmaceutical residues by means of high-performance liquid chromatography with tandem mass spectrometry (LC-MS/MS) in foods **
DIN EN 14132 2010-01	Food analysis - determination of ochratoxin A in barley and roasted coffee – HPLC method with immunoaffinity column cleaning (deviation: <i>also, green coffee /instant coffee, extraction, measurement using L-MS/MS</i>)
ASU L 40.00-17 2014-08	Food analysis – determination of antibiotic residues in honey – HPLC-MS/MS method (modification: <i>extraction as well as analytes tested</i>)
ASU L 46.00-5 2013-08	Food analysis – determination of acrylic amide in coffee and coffee products, HPLC-MS/MS, GC-MS after derivatisation (deviation: <i>matrix food, weighed portion of 5 g, no solid-phase extraction, no GC-MS</i>)
Ph.Eur.2.8.13 9 th issue 2017-12	Pesticide residues in herbal drugs, LC-MS/MS and GC-MS/MS
VA 14100 2020-04	Determination of cannabinoids in products containing hemp, LC-MS/MS
VA 14101 2020-01	Determination of cannabinoids in beverages, LC-MS/MS
VA 14110 2020-01	Determination of cannabinoids in hemp oil, LC-MS/MS
VA 31940 2019-08	Chemical marker substances for Manuka honey, LC-MS/MS, honey
VA 40420 2016-12	Determination of caramel colour (E 150d), LC-MS/MS in honey
VA 40425 2019-09	Imidazoles made from caramel colour, LC-MS/MS, foods containing sugar

VA 40450 2019-08	Detection of a marker substance for rice syrup, LC-MS/MS in honey
VA 40470 2019-08	Detection of a marker substance for sugar beet syrup, LC-MS/MS in honey
VA 40800 2019-12	Authenticity of honey by means of LC-HRMS / LC-/MS/MS
VA 44210 2019-08	Determination of chloramphenicol, LC-MS/MS in meat and fish
VA 44301 2019-08	Determination of antibiotics, nitrofurantol metabolites, LC-MS/MS in animal source foods containing protein
VA 45106 2019-10	Aflatoxin B1, B2, G1, G2, LC-MS/MS, food
VA 45153 2020-01	Determination of pyrrolizidine alkaloids (PA) and tropane alkaloids in honey by means of SPE-LC-MS/MS, (based on BfR-PA-honey-1.0, 2013)
VA 45170 2019-08	Determination of ergot alkaloids, LC-MS/MS, cereal products
VA 45185 2018-08	Pyrrolizidine alkaloids (PA), LC-MS/MS, bee products (BG 5-50 ppb)
VA 45188 2019-08	Determination of pyrrolizidine alkaloids (PA) in plant material by means of SPE-LC-MS/MS (based on BfR-PA-tea-2.0, 2014)
VA 45195 2017-07	Tropane alkaloids BfR-PA-flour-1.0/2014 mod., LC-MS/MS cereal products and fatty foods
VA 45202 2019-07	Determination of antibiotics, tetracycline, LC-MS/MS in pollen
VA 45208 2019-01	Antibiotics, tetracycline, LC-MS/MS (BG 10 ppb), royal jelly
VA 45226 2019-11	Determination of antibiotics, streptomycin, LC-MS/MS in honey (BG 10 ppb)
VA 45229 2019-08	Determination of antibiotics, streptomycin, LC-MS/MS in royal jelly

VA 45232 2019-07	Determination of antibiotics, sulfonamides and trimethoprim LC-MS/MS (BG 10 ppb), pollen
VA 45270 2019-07	Determination of antibiotics, fluoroquinolones, LC-MS/MS (BG 10 ppb), pollen
VA 45272 2019-01	Determination of antibiotics, fluoroquinolones, LC-MS/MS (BG 10 ppb), royal jelly
VA 45281 2019-07	Determination of antibiotics, nitroimidazoles, LC-MS/MS (BG 0.5 ppb), pollen
VA 45284 2019-08	Determination of antibiotics, nitroimidazoles, LC-MS/MS (BG 0.5 ppb), royal jelly
VA 45301 2019-12	Determination of antibiotics, nitrofurantoin-metabolites, LC-MS/MS in honey
VA 45303 2020-04	Determination of antibiotics, nitrofurantoin-metabolites, LC-MS/MS in royal jelly
VA 45310 2016-04	Determination of antibiotics, erythromycin, LC-MS/MS in honey
VA 45353 2019-07	Antibiotics, macrolides, LC-MS/MS (BG 10 ppb), pollen
VA 45354 2019-01	Antibiotics, macrolides, LC-MS/MS (BG 10 ppb), royal jelly
VA 45360 2019-08	Determination of antibiotics, beta-lactam, penicillin, LC-MS/MS in honey
VA 45370 2019-08	Determination of florfenicol, thiamphenicol, LC-MS/MS in honey
VA 45515 2019-01	Determination of antibiotics, sulfonamides and trimethoprim, LC-MS/MS (BG 10 ppb), royal jelly
VA 46511 2020-02	Determination of the 16-O methylcafestol content of coffee - HPLC- MS/MS
VA 86100 2019-05	Determination of bee pharmaceuticals, LC-MS/MS in honey

VA 86202 2019-01	Determination of cymiazole, LC-MS/MS in honey
VA 86207 2016-04	Determination of carbendazim, LC-MS/MS in honey
VA 86211 2019-10	Determination of chloramphenicol, LC-MS/MS in honey
VA 86215 2019-10	Determination of chloramphenicol, (CAP), LC-MS/MS, honey (BG 0.05 ppb)
VA 86217 2020-04	Determination of chloramphenicol, LC-MS/MS in royal jelly
VA 86505 2019-12	Determination of amitraz, LC-MS/MS in honey
VA 88460 2019-08	Residues, perchlorate and chlorate, QuPPE-method, food
VA 88502 2020-03	Glyphosate, LC-MS/MS, food
VA 88503 2019-08	Pesticide residue, nicotine, LC-MS/MS food
VA 88510 2020-03	Glyphosate, LC-MS/MS, honey

1.2.16 Determination of volatile ingredients and additives by means of gas chromatography with standard detector (FID) in essential oils and beeswax **

VA 10500 2019-08	Determination of various volatile ingredients in essential oils, gas chromatography, surface percentage
VA 10610 2016-08	Purity determination of magrocols (ethylene and diethylene glycol), GC-FID
VA 31400 2018-06	Detection of external paraffins, GC-FID in beeswax

1.2.17 Determination of additives, residues and contaminants by means of gas chromatography with mass spectrometry (GC-MS) **

ASU L 46.00-4 2016-03	Determination of furan in coffee and coffee products with headspace gas chromatography and mass spectrometry (deviation: <i>here 2-methylfuran and 3-methylfuran, quantification and HS-GC-MS/MS conditions</i>)
ASU L 46.01-4 2013-08	Determination of the ethyl acetate content in decaffeinated coffee, DIN 10783, headspace-GC-MS/MS (deviation: <i>analysis of ethyl acetate and MS/MS detection in green and roasted coffee</i>)
VA 12121 2019-10	Determination of the content of aromatic hydrocarbon (BTX + octane), GC/MS-headspace in honey
VA 13110 2018-07	Determination of furan in infusion, headspace /GC-MS in coffee
VA 14045 2019-11	Determination of terpenes in herbal drugs / extracts, GC-MS
VA 86000 2019-08	Determination of polychlorinated biphenyls (PCB), GC/MS
VA 86223 2018-10	Determination of dithiocarbamates and thiuram disulfides, headspace-GC/MS, food
VA 86308 2018-06	Determination of bee repellents in honey, GC-MS

1.2.18 Determination of foreign sugars and ingredients in honey, sugar and oils by means of isotopic ratio mass spectrometry (IRMS) **

AOAC 998.12 2013	C-4 plant sugars in honey, 13 C-isotope mass spectrometry (deviation: weighed portion, sample preparation, determination of carbon isotopes for honey and protein)
VA 40240 2019-11	Adulteration, vanillin, 13C-LC-IRMS, cleaned up vanillin-extracts
VA 40262 2019-02	Adulteration, isotope analysis, 13C-EA-IRMS (AOAC 998.12, mod.) + 13C-LC-IRMS (C4/C3 sugar), honey

VA 40265 2020-04	Adulteration, isotope analysis, ^{13}C -LC-IRMS (C4/C3 sugar), honey
VA 40269 2020-04	Detection of C4-foreign sugars by means of ^{13}C isotope mass spectrometry in coconut flower syrup and coconut flower sugar

1.2.19 Determination of ingredients and parameters in honey and sugar, green and roasted coffee, fats/oils spices, seasoning ingredients and herbs by means of nuclear magnetic resonance (NMR) spectroscopy **

VA 40500 2018-09	NMR - honey profiling TM , BRUKER + QSI interpretation, authenticity and quality
VA 40600 2018-12	H-NMR spectroscopy to determine authenticity, agave syrup
VA 41100 2019-12	Methylglyoxal (MGO) and dihydroxyacetone (DHA), NMR, honey
VA 41200 2018-04	16-O-methylcafestol, H-NMR, green and roasted coffee
VA 41210 2018-04	Trigonelline and N-methylpyridine, H-NMR, green and roasted coffee
VA 41300 2019-03	Analysis of fats/oils by means of NMR for fat classification numbers and authenticity
VA 42110 2019-06	Comparison of two samples by means of ^1H -NMR spectroscopy

1.2.20 Authenticity analysis of beeswax by means of infrared spectroscopy

VA 70120 2019-09	ATR-FTIR spectrum to determine the authenticity of beeswax
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1.3 Microscopic analyses**1.3.1 Determination of pollen and ingredients by means of microscopic analyses of honey, flower pollen and plant-based foods ****

ASU L 40.00-11 2003-12	Food analysis – testing of honey – determination of the relative pollen frequency (deviation: <i>smaller volume, higher temperature when preparing the specimens</i>)
VA 262 2019-01	Determination of the yeast content, estimation, microscopic; honey
VA 268 2019-03	Determination of the starch content, microscopic; honey
VA 269 2019-08	Identification of pollen species, palynological determination, microscopic; pollen mixtures, flower pollen
VA 270 2015-10	Contaminations / foreign matter, microscopic, in honey
VA 271 2018-04	Contaminations (insects, parts of insects, other foreign contaminations), binocular microscope
VA 285 2019-03	Determination of the yeast content, quantitative, microscopic; honey

1.4 Immunological analyses**1.4.1 Determination of pharmaceutical residues by means of immunoassay in honey ***

r-biopharm No.: R1511 2016-10	Enzyme immunoassay for quantitative determination of chloramphenicol, honey (BG 0.3 ppb)
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1.5 Molecular-biological tests**1.5.1 Detection of nosema species by means of real-time PCR**

VA 60200 Analysis of Nosema spec. in honey, real-time PCR
2018-08

1.5.2 Detection of American and European foulbrood by means of real-time PCR **

VA 60201 Detection of Paenibacillus larvae (American foulbrood), real-time PCR
2019-06

VA 60202 Detection of Melissococcus plutonius (European foulbrood), real-time
2018-08

1.5.3 Detection of genetically modified organisms and plants by means of real-time PCR **

CVUA Freiburg Real-time PCR genetically modified plants – part C: GVP screening pat / bar /
PV 51P50101 CTP2-CP4EPS-SPS-Triplex, PV 51P50101
2011-12 (deviation: *sample preparation like ASU L 00.00-122*)

EURL-GMFF Quantitative PCR-method for the detection of T25-maize
QL-CON-00-005 (deviation: *only qualitative detection, matrix honey*)
2011-11

EURL-GMFF Quantitative PCR-method for the detection of MS8-oilseed rape
QT-EVE-BN-002 (deviation: *only qualitative detection*)
2007-01

EURL-GMFF Quantitative PCR-method for the detection of Rf3-oilseed rape
QT-EVE-BN-003 (deviation: *only qualitative detection*)
2007-01

EURL-GMFF Quantitative PCR-method for the detection of GT73 oilseed rape
QT-EVE-BN-004 (deviation: *only qualitative detection; additionally, detection of the*
2007-02 *plant species*)

EURL-GMFF Quantitative PCR-method for the detection of MON1445 cotton
QT-EVE-GH-003 (deviation: *only qualitative detection*)
2008-06

EURL-GMFF QT-EVE-GH-004 2008-06	Quantitative PCR-method for the detection of MON 531 cotton (deviation: <i>only qualitative detection; additionally, detection of the plant species</i>)
EURL-GMFF QT-EVE-GH-005 2008-06	Quantitative PCR-method for the detection of MON 15985 cotton (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-GH-007 2009-05	Quantitative PCR-method for the detection of MON 88913 cotton (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-GM-001 2009-01	Quantitative PCR-method for the detection of GTS-40-3-2 - soy (deviation: <i>only qualitative detection; additionally, detection of the plant species</i>)
EURL-GMFF QT-EVE-GM-006 2008-02	Quantitative PCR-method for the detection of MON 89788 soy (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-GM-007 2009-01	Quantitative PCR-method for the detection of A5547-127 soy (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-GM-008 2013-09	Quantitative PCR-method for the detection of DP-305423-1 soy (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-GM-011 2011-09	Quantitative PCR-method for the detection of BPS-CV127 soy (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-OS-002 2006-06	Quantitative PCR-method for the detection of LLRICE62 rice (deviation: <i>only qualitative detection; additionally, detection of the plant species</i>)
EURL-GMFF QT-EVE-ZM-008 2005-01	Quantitative PCR-method for the detection of NK603 maize (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-ZM-016 2010-03	Quantitative PCR-method for the detection of MON 88017 maize (deviation: <i>only qualitative detection</i>)

EURL-GMFF QT-EVE-ZM-019 2008-11	Quantitative PCR-method for the detection of 3272 maize (deviation: <i>only qualitative detection</i>)
EURL-GMFF QT-EVE-ZM-020 2006-03	Quantitative PCR-method for the detection of MON 810 maize (deviation: <i>only qualitative detection; additionally, detection of the plant species</i>)
EURL-GMFF SYN-EV176-9 2011-07	Detection of Bt-176 maize, PCR, food
EURL-GMFF QT-EVE-ZM-021 2011-01	Detection of 98140 maize, PCR, food
EURL-GMFF QT-EVE-ZM-022 2011-03	Quantitative PCR-method for the detection of MIR-162 maize (deviation: <i>only qualitative detection</i>)
EURL-GMFF SYN-EV176-9 2011-07	Detection of Bt-176 maize, PCR, food
VA 60061 2018-08	Detection of GMO-markers: triple screening (p-35S, t-NOS, CTP2-CP4-EPSPS), PCR, food
VA 60105 2018-07	Detection of cauliflower mosaic virus, PCR in food
VA 60160 2018-08	Detection of maize species (<i>Zea mays</i>), real-time PCR in food
VA 60161 2018-08	Detection of DAS40278-9 maize, real-time PCR in food
VA 60162 2018-08	Detection of DAS68416-4 soy, real-time PCR in food
VA 60163 2018-08	Detection of DAS44406-6 soy, real-time PCR in food
VA 60164 2018-08	Detection of DAS81419-2 soy, real-time PCR in food

VA 60180 2018-08	Qualitative and quantitative detection of alfalfa (Medicago sativa) - specific
VA 60800 2019-06	Detection of GMO-markers: penta screening (p-35S, t-NOS, FMV, pat(syn), bar), PCR, food

2. Furniture, equipment and commodities in food production**2.1 Microbiological tests *****

ASU B 80.00-2 1998-01	Testing of commodities - determination of the surface bacterial count on furniture, equipment and commodities in the food sector - Part 2: semi-quantitative swab method (deviation: inoculation quantity and dilution solution)
ASU B 80.00-3 1998-01	Testing of commodities - determination of the surface bacterial count on furniture, equipment and commodities in the food sector - Part 3: Semi-quantitative method using sampling devices coated with nutritional culture media, agar contact method

3. Pharmaceuticals and active ingredients**3.1 Sensory tests of pharmaceutical raw materials *****

Ph. Eur. 2.2.1 9 th issue 2017-12	Clarity and opalescence of liquids, visual
Ph. Eur. 2.2.2 9 th issue 2017-12	Colouration of liquids, visual
Ph. Eur. 2.8.2 9 th issue 2017-12	Methods of pharmacognosy, foreign matter, optical
Ph. Eur. 2.8.8 9 th issue 2017-12	Methods of pharmacognosy, appearance, colour and smell of essential oils, sensory

Ph. Eur. 2.8.15 Sensory testing method, bitter value
9th issue
2017-12

3.2 Microscopic analyses of pharmaceutical raw materials ***

Ph. Eur. 2.8.2 Foreign ingredients
9th issue
2017-12

Ph. Eur. 2.8.3 Methods of pharmacognosy, stomata and stomatal index, microscopic
9th issue
2017-12

Ph. Eur. 2.8.23 Microscopic analysis of herbal drugs
9th issue
2017-12

3.3 Physical, physico-chemical and chemical analyses of pharmaceutical raw materials

3.3.1 Gravimetric determination of ingredients and additives *

Ph. Eur. 2.2.32 Loss of mass by drying, gravimetric, air-oven method
9th issue
2017-12

Ph. Eur. 2.4.14 Limit testing, sulphated ash, gravimetric
9th issue
2017-12

Ph. Eur. 2.4.16 Limit testing, ash, gravimetric
9th issue
2017-12

Ph. Eur. 2.5.7 Method of content determination, unsaponifiable matter, gravimetric
9th issue
2017-12

Ph. Eur. 2.8.1 Methods of pharmacognosy, hydrochloric acid insoluble ash, gravimetric
9th issue
2017-12

Ph. Eur. 2.8.9 9 th issue 2017-12	Methods of pharmacognosy, evaporation residue of essential oils, gravimetric
Ph. Eur. 2.8.16 9 th issue 2017-12	Methods of pharmacognosy, dry residue of extracts, gravimetric
Ph. Eur. 2.9.12 9 th issue 2017-12	Methods of pharmaceutical technology, sieve analysis, gravimetric
DGF-M-V 6 (57) 1957-03	Total hydrocarbon (gravimetric method)

3.3.2 Determination of ingredients and additives by means of titrimetric analysis*

Ph. Eur. 2.5.1 9 th issue 2017-12	Method of content determination, acid value, titrimetric
Ph. Eur. 2.5.2 9 th issue 2017-12	Method of content determination, ester value, titrimetric
Ph. Eur. 2.5.3 9 th issue 2017-12	Method of content determination, hydroxyl value, titrimetric
Ph. Eur. 2.5.4 9 th issue 2017-12	Method of content determination, iodine value, titrimetric/iodometry
Ph. Eur. 2.5.5 9 th issue 2017-12	Method of content determination, peroxide value, titrimetric/iodometry
Ph. Eur. 2.5.6 9 th issue 2017-12	Method of content determination, saponification value, titrimetric
Ph. Eur. 2.5.12 9 th issue 2017-12	Method of content determination, semi-micro determination of water - Karl-Fischer-method, titration

3.3.3 Photometric determination of ingredients and additives ***

Ph. Eur. 2.2.25 UV-Vis spectroscopy, photometer
9th issue
2017-12

3.3.4 Determination of parameters by means of electrochemical analyses ***

Ph. Eur. 2.2.3 pH level, potentiometric method
9th issue
2017-12

Ph. Eur. 2.2.20 Potentiometry, potentiometer
9th issue
2017-12

Ph. Eur. 2.2.38 Conductivity, conductivity meter
9th issue
2017-12

3.3.5 Detection of ingredients by means of thin-layer chromatography (DC) in pharmaceutical raw materials **

IUPAC method 2.611 Testing for paraffines, thin-layer chromatography
1992-06 (deviation: *matrix jojoba oil*)

Ph. Eur. 2.2.27 Thin-layer chromatography, capillary chromatography
9th issue
2017-12

VA 1103 Identity test flavonoids, thin-layer chromatography
2011-08

3.3.6 Detection of ingredients by means of high-pressure liquid chromatography (HPLC) in pharmaceutical raw materials ***

Ph. Eur. 2.2.29 Testing for paraffines in pharmaceutical raw materials, liquid chromatography (HPLC)
9th issue
2017-12

3.3.7 Detection of ingredients by means of gas chromatography (GC) with standard detectors in pharmaceutical raw materials ***

Ph. Eur. 2.2.28 Ingredients of pharmaceutical raw materials gas chromatography (GC)
9th issue
2017-12

3.3.8 Determination of ingredients and additives by means of wet chemical analyses of pharmaceutical raw materials ***

Ph. Eur. 2.4.1 Limit testing, ammonium, wet chemical
9th issue
2017-12

Ph. Eur. 2.4.2 Limit testing, arsenic, wet chemical
9th issue
2017-12

Ph. Eur. 2.4.4 Limit testing, chloride, wet chemical
9th issue
2017-12

Ph. Eur. 2.4.8 Limit testing, heavy metals, wet chemical
9th issue
2017-12

Ph. Eur. 2.4.13 Limit testing, sulphate, wet chemical
9th issue
2017-12

Ph. Eur. 2.4.19 Limit testing, alkaline-reacting substances in fatty oils, wet chemical
9th issue
2017-12

3.2.9 Further physical, physico-chemical and chemical analyses of pharmaceutical raw materials ***

Ph. Eur. 2.2.5 Relative density, densitometer (oscillating U-tube), liquid
9th issue pharmaceutical raw materials
2017-12

Ph. Eur. 2.2.6 Refractive index, liquid pharmaceutical raw materials
9th issue
2017-12

Ph. Eur. 2.2.7 9 th issue 2017-12	Optical rotation, polarimeter, liquid pharmaceutical raw materials
Ph. Eur. 2.2.8/9 9 th issue 2017-12	Viscosity, capillary viscometer, liquid pharmaceutical raw materials
Ph. Eur. 2.2.11 9 th issue 2017-12	Distillation range, determination of the temperature range, liquid pharmaceutical raw materials
Ph. Eur. 2.2.12 9 th issue 2017-12	Boiling temperature, determination of the temperature, liquid pharmaceutical raw materials
Ph. Eur. 2.2.13 9 th issue 2017-12	Determination of water by distillation, volumetric, liquid pharmaceutical raw materials
Ph. Eur. 2.2.14 9 th issue 2017-12	Melting temperature, capillary method (modification: <i>only for the range < 95 degrees</i>)
Ph. Eur. 2.2.15 9 th issue 2017-12	Clear melting point, method with open capillary
Ph. Eur. 2.2.17 9 th issue 2017-12	Dropping point, dropping point thermometer
Ph. Eur. 2.2.18 9 th issue 2017-12	Solidification temperature, thermometer
Ph. Eur. 2.2.49 9 th issue 2017-12	Viscosity, falling sphere viscometer, liquid pharmaceutical raw materials
Ph. Eur. 2.8.12 9 th issue 2017-12	Methods of pharmacognosy, determination of the essential oil content in drugs, steam distillation

4 Analysis of organic substances**4.1 Detection of ethanol, acetic acid, ethyl acetate by means of gas chromatography with mass spectrometry (GC-FID/GS-MS) ****

VA 12140 2019-03	Determination of ethanol and acetic acid by means of GC-FID/GC-MS in ethyl acetate
VA 12141 2018-08	Determination of ethanol and ethyl acetate, GC-FID/GC-MS in ethyl acetate
VA 12142 2016-06	Determination of ethanol, GC-MS in ethyl acetate and production water samples
VA 12143 2016-08	Determination of acetic acid, GC-FID in ethyl acetate

4.2 Determination of the purity and the content of organic pure substances by means of hydrogen nuclear magnetic resonance spectroscopy (H-NMR) **

VA 42000 2019-03	Purity testing of organic substances by means of 1-H-NMR
VA 42100 2017-03	1-H-NMR spectrum of organic substances
VA 42130 2018-01	Identity testing by means of 1H-NMR nuclear magnetic resonance spectrum of organic substances
VA 42200 2018-05	31P-NMR spectrum of organic substances
VA 42300 2017-09	13C-NMR spectrum of organic substances

4.3 Identity determination of organic substances by means of infrared spectroscopy *

Ph. Eur. 2.2.24 9 th issue 2017-12	IR-spectroscopy
USP 42 <197> 2019-05	Spectroscopic identity determination

Abbreviations used:

AOAC	Official Methods of Analysis of AOAC International
AOCS	American Oil Chemists Society
ASTA	American Spice Trade Association
ASU	Amtliche Methodensammlung [Official collection methods]
DAB	Deutsches Arzneibuch [German Pharmacopoeia]
DGF	Einheitsmethoden der Deutschen Gesellschaft für Fettwissenschaft e.V. [Standard methods of the German Society for Fat Science e.V.]
DIN	Deutsches Institut für Normung [German Institute for Standardisation e. V.]
EN	Europäische Norm [European standard]
EURL-GMFF	Compendium of reference methods for GMO analysis, JRC
EWG	Europäische Wirtschaftsgemeinschaft [European Economic Community]
ICUMSA	International Commission for Uniform Methods of Sugar Analysis
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LFBG	Lebens- und Futtermittelgesetzbuch [German food, consumer goods and feed code]
NMR	Nuclear Magnetic Resonance Spectroscopy
NMX	Mexican standard
Ph. Eur.	European Pharmacopoeia
RL	Richtlinie [Guideline]
SAGARPA	Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
USP	United States Pharmacopoeia
VA XXXXX	Internal testing method of Quality Services International GmbH

I hereby certify that this is a true and complete translation of the German original document presented to me. This translation comprises 28 pages.

Göttingen, 28 February 2021

Lucie Hamdi – Generally sworn interpreter and authorised translator, District Court of Hanover