

SERVICE FEED ANALYSIS



Services Feed Analysis

The Institute of Animal Nutrition and Feed is offering a broad spectrum of analysis of feeding stuffs. The Laboratory is accredited according to ISO 17025.

Besides the standard analysis, we also offer the option of a less expensive screening method. These are either single determinations or newer, more cost-effective procedures. These screening methods are usually sufficient for in-house quality control. For product checks, suspected samples, judicial arbitration, insurance claims, etc. we always recommend using the standard analyses.

The General Terms and Conditions published at www.ages.at apply to all AGES services.

Moisture

- Moisture / dry matter, Regulation (EC) 152/2009 (without pre-drying)
- Moisture / dry matter, Regulation (EC) 152/2009 (with pre-drying)
- Moisture, Karl-Fischer (DIN EN ISO 8534)
- pH-value

Feed Ingredients

- Crude protein micro, Regulation (EC) 152/2009 Kjeldahl
- Crude protein macro, Regulation (EC) 152/2009 Kjeldahl, as for canned food
- Nitrogen (crude protein) and / or carbon by combustion

- Protein solubility of soybeans and soy products, VDLUFA 20.2 (water) or ISO 14244 (KOH)
- Crude fat, VO (EC) 152/2009
- Crude fat after acid digestion (total fat), Regulation (EC) 152/2009
- Crude fibre, Regulation (EC) 152/2009
- Starch, Regulation (EC) 152/2009 (Ewers)
- Total sugar by Fehling, calculated as invert sugar or sucrose
- Total sugar, Regulation (EC) 152/2009, Luff-Schoorl, calculated as sucrose
- Lactose, Regulation (EC) 152/2009, Luff-Schoorl
- Crude ash, Regulation (EC) 152/2009
- Ash insoluble in HCl (sand, clay, etc.), Regulation (EC) 152/2009
- Peroxide Value
- Acid value / free fatty acids
- Fatty acid spectrum (basic)
- ADF, NDF, ADL in feed according to VDLUFA MB III 6.5.1
- Urea
- Alpha acid in hops
- Fructane
- Tetrahydrocannabinol (THC) and Cannabidiol (CBD) in hemp and hemp products by GC/MS

Amino Acids

- Amino acids, according to regulation (EC) 152/2009 (except cystine, methionine and tryptophan)
- Cysteine and/or methionine
- Tryptophan by HPLC
- Methioninhydroxyanalogon (MHA) by HPLC¹
- Taurine¹

¹ Parameters are subcontracted to a partner laboratory of AGES.

Elements

- Ca, P, Na, K, Mg, Fe, Cu, Zn, Mn, Co, Mo, Se, As, Hg, Pb, Cd by ICP-AES or by means of ICP-MS
- Se, As, Hg by hydride AAS or cold vapour technique
- Cd, Pb, Co, Ni, Cr, Be, Tl by graphite furnace AAS
- Ca, Na, Mg, Co, Fe, Cu, Mn, Zn, Pb, Cd by flame AAS
- Fluoride (digestion or extraction and determination by means of electrode)
- Iodine by ICP-MS
- Sulphate, Chloride, Nitrate, Nitrite by means of IC
- Nitrite by spectrophotometry (calculated as Na-Nitrite)
- Inorganic Arsenic in food with HPLC-ICP-MS

Vitamins

- Vitamin A (EC) 152/2009 Annex IV / A, HPLC-UV
- β -carotene: saponification with methanolic KOH, liquid-liquid extraction, HPLC with UV detection
- Vitamin D3 / D2: saponification, liquid-liquid extraction, clean up with HPLC and fraction collector, HPLC with PDA detection
- Vitamin E (EC) 152/2009 Annex IV / B, HPLC with fluorescence detection
- Vitamin A and Vitamin E, (EC) 152/2009 Annex IV / B, HPLC with fluorescence detection
- Water-soluble vitamins (thiamine, riboflavin, pyridoxine, niacin + niacin amide, folic acid) by HPLC-DAD, VDLUFA 13.9.1
- Ascorbic acid and isoascorbic acid by HPLC-DAD, BVL L00.00.85
- Vitamin B1 by HPLC-FLD to ÖNORM EN 14122, modified
- Vitamin B12 (Cyanocobalamin) by LC/MS, AOAC 2011.08
- Carnitine¹
- Biotin¹

Additives and antinutritive substances

- Carotenoids
- Antioxidants (BHA, BHT, Ethoxyquin) by HPLC
- Organic acids by HPLC-RI/UV
- Benzoic acid and sorbic acid by HPLC
- Urease activity, VDLUFA 20.1
- Phytase activity, ISO 30024
- Trypsin inhibitor activity of soy products according to ISO 14902

Microbiology

Forbidden antibiotics and chemical performance enhancers

- Inhibitor test
- Identifying antibiotics by DC and bioautography
- Identifying antibiotics by LC/MS-MS

Microbiological feed additives

- Probiotics (VDLUFA method)

Microorganisms / undesirable substances (colony counting methods)

- Total viable count
- Aerobic spore forming bacteria
- Sulfite-reducing clostridia
- Enterobacteriaceae
- Escherichia coli

- Coagulase-positive staphylococci
- Enumeration of aerobic mesophilic bacteria
- Enumeration of moulds and yeasts

Microorganisms / undesirable substances (colony counting methods)

- Salmonella sp. (ÖNORM EN ISO 6579)
- Salmonella sp. ÖNORM EN ISO 6579, Annex D (for 5- and 10-fold approach)
- Salmonella sp. (PCR)
- Clostridium perfringens
- Listeria sp.
- Clostridium botulinum Toxin genotyping (PCR)

Microscopic examinations

- Constitutes of animal origin
- Botanical contamination
- quantitative determination of component in feed
- qualitative determination of components = recipe verification
- Packaging materials
- Cereal fraction (soybean, cereals, maize)
- Depravity of feed and pest infestation

Molecular biological examination

- Detection of ruminant DNA in feed using real-time PCR
- GMO screening feed complete by Real Time PCR
- GMO screening maize by Real Time PCR
- GMO screening rapeseed by Real Time PCR
- GMO screening soy bean by Real Time PCR
- GMO identification by Real Time PCR (after screening) per event

- GMO quantification by Real Time PCR (after screening/identification) per event
- species differentiation by Real Time PCR
- Species differentiation by ELISA (poultry, beef, pork and sheep / goat)
- Gluten, Prolamins (ELISA)

Mycotoxins

- B-trichothecenes: Wet chemical extraction and Clean Up on MycoSep solid phase extraction. Determination of the TMS derivatives on 2 columns by GC / ECD different polarity after silylation
- A-trichothecenes: Wet chemical extraction with Clean Up on MycoSep solid phase extraction and IAC. Determination of the TMS derivatives by Isotopenverdünnungs-GC / MS two fully ¹³C-labeled internal standards
- "Multi method for the rapid determination of 18 + 2 mycotoxins in cereals, plants based feed and food by LC / MS-MS (Dilute & Shoot with SIVA)"
- Zearalenone: Wet chemical extraction and Clean Up on immunoaffinity. Determination by HPLC / FLD.
- Fumonisin: Wet chemical extraction and Clean Up on immunoaffinity. Determination by HPLC / FLD
- Ochratoxin A: Wet chemical extraction and Clean Up on immunoaffinity. Determination by HPLC / FLD.
- Aflatoxins: Wet chemical extraction and Clean Up on immunoaffinity. Determination by means of post-column reaction on HPLC/FLD .
- Ergot alkaloids: Wet chemical extraction and Clean Up on solid phase column. Determination by HPLC / FLD.
- Deoxynivalenol: Wet chemical extraction and Clean Up on immunoaffinity. Determination by means of HPLC / DAD.
- Alternariol, Alternariolmethylether: Wet chemical extraction and Clean Up on solid phase column. Determination by HPLC / FLD.
- Deoxynivalenol, Zearalenone, Fumonisin, Aflatoxin B1 by ELISA

Other undesirable substances

- Hydrocyanic acid in feed by HPLC according to ISO 16160
- 12 EPA-PAH (digestion with methanolic KOH, liquid-liquid distribution using cyclohexane, Clean-up on SPE-pillars and HPLC with fluorescence detection)
- Organochlorine pesticides, non-dioxin-like polychlorinated biphenyls (PCBs)
- Pesticides according to Regulation (EC) 396/2005 (QS)
- Glyphosate, AMPA (metabolites glyphosate), ethephon, glufosinate, MPPA (metabolite glufosinate), fosetyl, maleic hydrazide, perchlorate, chlorate, cyanuric acid
- Melamine, Daminozid, Trimethylsulfonium, (Chlormequat, Mepiquat, Cyromazin)"
- HCB in feed
- HCBd by GC-MS (BVL F 0057)
- Glyphosat, AMPA (Metabolit Glyphosat), Glufosinat by FMOC-precolumm derivatisation
- Chlormequat (Mepiquat, Cyromazin)
- Screening : Ethoxyquin by GC-MS
- Dithiocarbamate (as CS₂)
- Tropane alkaloids in cereals/products by LC-MS/MS
- Coumarin¹
- Dioxins¹
- Dioxins (PCDD / F) and dioxin-like PCBs¹
- Dioxins (PCDD / F) and dioxin-like PCBs and non-dioxin-like PCBs¹
- Melamine by LC-MS / MS
- Propylene glycol (1,2-propanediol) in animal feed by means of GC-FID
- Hexane and cyclohexane in feed and feed oil by SPME-GC-MSD
- Biogenic Amines
- Limit value control, cesium 137 and 134
- g-radiation (z.B. Cs 137/138)
- Sr 90
- Natural radionuclides

Veterinary Drugs and Hormones

- Content determination of coccidiostats in feed by LC-MS¹
- Residue analysis of coccidiostats in feed by LC-MS¹
- Chloramphenicol in animal matrices by LC / MS-MS
- Hormons (Estrogens und Stilbenes, Gestagens) in feed by LC-MS/MS¹

Packages of Analysis

- Weender analysis (dry matter, crude protein, crude fat, crude fibre, ash)
- Extended Weender analysis (dry matter, crude protein, crude fat, crude fibre, ash, starch, sugar)
- Cattle feed: crude protein, crude fat, crude ash, starch, NDFom, dry matter, energy (ME)
- Milk substitutes: crude protein, crude fat, lysine, dry matter
- Pig feed: crude protein, crude fat, crude ash, crude fibre, starch, dry matter, calcium, phosphorus, lysine, energy (ME)
- Poultry feed I: crude protein, crude fat, crude ash, sugar, starch, dry matter, calcium, phosphorus, methionine, cystine, energy (ME)
- Poultry feed II: crude protein, crude fat, crude ash, sugar, starch, calcium, dry matter, energy (ME)
- Mineral feed for cattle: calcium, phosphorus, copper, zinc
- Mineral feed for pigs: calcium, phosphorus, copper, zinc, lysine, methionine
- Escherichia coli, coagulase-positive staphylococci, sulfite-reducing clostridia, Salmonella sp. (ÖNORM EN ISO 6579)
- Total viable count, Enterobacteriaceae, sulfite-reducing clostridia, Salmonella sp. (ÖNORM EN ISO 6579)
- Escherichia coli, aerobic spore forming bacteria, sulfite-reducing clostridia, Salmonella sp. (ÖNORM EN ISO 6579)
- Enterobacteriaceae, Salmonella sp. (ÖNORM EN ISO 6579, Annex D)

Formal examinations and others

- Expert performance (labelling checks, examination each time per hour)
- Sensory testing in pet food
- Homogeneity testing of feed mixers with microtracer
- Procrastination control with microtracer
- Travel expenses in the course of the examination at least mixer
- Coverage Determination of binding cat litter
- Sieve analysis of cat litter



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