# Hellenic Accreditation System

Annex F1/19 to the Certificate No. **848**-5

# SCOPE of ACCREDITATION

of the

**Testing Laboratory**

of

# "MODERN ANALYTICS"

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| **Chemical Tests** | | |
| 1. Potable, Underground (drilling) and Surface water<br>Waste water | 1. pH Measurement (**) | APHA* 4500-H B |
| | 2. Electrical Conductivity Measurement ***(**)*** | APHA* 2510 B |
| | 3. Determination of Alkalinity (carbonate alkalinity (as $CO_3^{2-}$) and total alkalinity (as $CaCO_3$ or $HCO_3^-$) | Inhouse method based on APHA* 2320 B |
| | 4. Determination of Turbidity | Inhouse method based on APHA* 2130 B |
| | 5. Determination of free and total chlorine and chloramines | Inhouse method based on APHA* 4500-Cl G |
| | 6. Determination of Anions (**):<br>Fluoride ($F^-$), Bromide ($Br^-$), Chloride ($Cl^-$), Nitrite ($NO_2^-$), Nitrate ($NO_3^-$), Phosphate ($PO_4^{3-}$), Sulfate ($SO_4^{2-}$)1. | APHA* 4110 C |
| | 7. Determination of Ammonium ($NH_4^+$)** | Merck 114752 |
| | 8. Determination of (**): Fluoride ($F^-$), Chloride ($Cl^-$), Nitrate ($NO_3^-$), Nitrite ($NO_2^-$), Phosphate ($PO_4^{3-}$), Sulfate ($SO_4^{2-}$), Ammonium ($NH_4^+$), Hexavalent chromium (Cr (IV)), Cyanide ($CN^-$), Silicate ($SiO_2$), Sulfide ($S^{2-}$), Sulfite ($SO_3^{2-}$), Phenol and Color (Pt-Co/Hazen) | Inhouse method based on ISO 15923-1:2013 & ISO 15923-2:2017 Discrete Analyzer, APHA* 4500-F D, APHA* 4500 $Cl^-$ E, APHA* 4500-$NO_3^-$ F, APHA* 4500-$NO_2^-$ B, APHA* 4500-P E, APHA* 4500-$SO_4^{2-}$ E, APHA* 4500-$NH_3$ F, APHA* 3500-Cr B, APHA* 4500-$CN^-$ E, APHA* 4500-$SiO_2$ D+E, APHA* 4500-$S_2^-$ D, Ellman, APHA* 5530 D, APHA* 2120 C |

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| 1. Potable, Underground (drilling) and Surface water<br>Waste water<br>(continued) | 9. Determination of Total Hardness | APHA* 2340 B |
| | 10. Determination of fats and oils | Inhouse method based on APHA* 5520 B |
| | 11. Determination of metals (**):<br>Silver (Ag), Aluminum (Al), Arsenic (As), Boron (B), Barium (Ba), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Indium (In), Lithium (Li), Manganese (Mn), Molybdenum (Mo), Nickel (Ni), Niobium (Nb), Lead (Pb), Selenium (Se), Strontium (Sr), Titanium (Ti), Vanadium (V), Uranium (U), Zinc (Zn) | ICP – OES, Ultrasonic Nebulizer-USN, In house method based on APHA* 3120 B |
| | 12. Determination of metals(**) :<br>Calcium (Ca), Potassium (K), Magnesium (Mg), Sodium (Na) | ICP-OES, In house method based on APHA* 3120 B |
| | 13. Determination of metals (**):<br>Silver (Ag), Aluminum (Al), Arsenic (As), Boron (B), Barium (Ba), Beryllium (Be), Bismuth (Bi), Calcium (Ca), Cadmium (Cd), Caesium (Cs), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Indium (In), Potassium (K), Lithium (Li), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Sodium (Na), Nickel (Ni), Niobium (Nb), Lead (Pb), Rubidium (Rb), Antimony (Sb), Selenium (Se), Strontium (Sr), Titanium (Ti), Thallium (Tl), Vanadium (V), Uranium (U), Zinc (Zn), Mercury (Hg), Tin (Sn) | ICP-MS, Inhouse method based on APHA 3125 B |
| 2. Waste water | Determination of Antimony (Sb) | ICP –OES, Ultrasonic Nebulizer-USN,<br>In house method based on APHA* 3120 B |
| 3. Water and wastewater (low and high salinity) | 1. Determination of chemically demanded oxygen (COD) | Internal method based on APHA 5220 D |
| | 2. Determination of biochemically demanded oxygen (BOD) | Internal method based on APHA 5210 D |
| 4. Water and wastewater | 1. Determination of total solid particles (TS) | Internal method based on APHA 2540 B |
| | 2. Determination of total suspended particles (TSS) | Internal method based on APHA 2540 D |
| | 3. Determination of total dissolved particles (TDS) | Internal method based on APHA 2540 C |
| | 4. Determination of total organic carbon (TOC) | Internal method based on ASTM D 7573 |
| | 5. Determination of total nitrogen (TN) and total Kjeldahl nitrogen (TKN) | Internal method based on ASTM D 8083-16 |
| | 6. Determination of total phosphorus (TP) | Internal method based on APHA 4500-P/ICP-OES |
| 5. Pool water | 1. Determination of free and total chlorine and chloramines | In house method based on APHA* 4500-Cl G |
| 6. Olive oil, pomace oil and edible plant | 1. Determination of free acids, cold method | IOC-COI/T.20/Doc. No 34 |

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| oils | 2. Determination of peroxide number | IOC-COI/T.20/Doc. No 35 |
| | 3. Spectrophotometric investigation in the ultraviolet | IOC-COI/T.20/Doc. No 19 |
| | 4. Fatty acid profile<br>Determination of fatty acids methylesters (FAME) | IOC-COI/T.20/Doc. No 33 |
| 7. Food<br><br>a) Fruit and vegetables with high water content<br>b) Cereals, pulses & nuts<br>c) Plant products with high fat content<br>d) Products with high sugar content<br>e) Unique Matrix-Tea, Spices etc. | Determination of pesticide residues in flexible scope of the categories:<br>Organophosphates, Organochlorines, Pyrethroids, Triazoles, Triazines, Dinitroanilines, Amides, Benzimidazoles, Carbamates, , Aryloxy-alkanoic acids, Benzoylureas, Strobilurins, Neonicotinoids, Polar, Dithiocarbamates, Phenolic Acids, Phthalimides, Biocides<br><br>The active substances that are determined are listed in detail in the Catalogue of Accredited Activities of the Laboratory's Flexible Scope (In accordance with ESYD/G-FYTOPROST 2016, on the website of the laboratory:<br>**(CATALOGUE OF ACCREDITED TESTS OF THE FLEXIBLE SCOPE)**<br><br>The flexibility applied covers the following categories<br>Flexibility regarding<br>• the addition of new active substances to existing matrices / methods<br>• the inclusion of existing / new matrices in existing methods<br>• the extension of methods to a new subcategory of matrices<br>• the extension / modification of existing methods (technique, equipment, determination range, limit of quantification)<br>The Accredited Methods are described in detail on the website of the Laboratory:<br>**(CATALOGUE OF ACCREDITED TESTS OF THE FLEXIBLE SCOPE)** | Internal methods based on SANTE/11312/2021<br>EN 15662<br>Dithiocarbamates EURL SRM Method v2<br>QuPPe-PO V12.2<br><br>Analytical Techniques<br>LC-MS/MS, GC-MS/MS |
| 8. Wine | 1. Determination of alcoholic strength, density, pH, total acidity, fructose, glucose and reducing substances | Winescan |
| 9. Honey | 1. Determination of hydroxymethylfurfural (HMF) | IHC methods, White method |
| | 2. Determination of diastase activity | IHC methods, Megazyme-Amylazyme method |
| | 3. Determination of moisture | IHC methods, refractometric method |
| | 4. Determination of electrical conductivity | IHC methods, Electrical Conductivity |
| | 5. Determination of sugars | IHC methods, Sugars by HPLC |
| | 6. Determination of pH | IHC methods, pH |
| 10. Food | 1. Determination of PAHs (Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene) | In house method GC-MS/MS (LATi65) |

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| | 2. Determination of acrylamide | In house method LC-MS/MS (LATi45) |
| | 3. Determination of benzoic and sorbic acid | In house method HPLC-UV, based on ISO 22855:2008 and ISO 9231:2008 |
| | 4. Determination of propionic acid | In house method HPLC-UV, (LATi66) |
| | 5. Determination of coumarin | In house method HPLC-UV, (LATi57) |
| | 6. Determination of total sulfur dioxide | In house method, based on AOAC 990.28 |
| 11. Food and additives | 1. Determination of nitrites and nitrates | In house method UV-VIS Discrete analyzer (LATi51) |
| 12. Food, Feed, wine | 1. Determination of ochratoxin A (OTA) | In house method LC-MS/MS |
| 13. Food, Feed, Plant tissue | 1. Determination of mycotoxins/aflatoxins (aflatoxin B1, aflatoxin B2, aflatoxin G1, aflatoxin G2, deoxynivalenol (DON), zearalenone (ZON), HT2 toxin (HT-2), T2 toxin (T-2), fumonisin B1 (FB1), fumonisin B2 (FB2)) | Internal method/ LC-MS/MS |
| | 2. Nutritional analysis<br>Moisture,<br><br>Ash,<br><br>Protein (N dumas),<br><br>Fats,<br><br>Fatty acid profile,<br><br>Determination of fatty acid methyl esters (FAME), saturated, unsaturated, monounsaturated, polyunsaturated, Omega-3, Omega-6, Omega-9, trans fatty acids,<br><br>Dietary fiber,<br><br>Total sugars,<br><br>Sugars profile (fructose, glucose, sucrose, maltose, lactose), | Internal methods based on AOAC 925.10, 925.45, 926.07, 945.15, 945.21, 950.46, 981.05, 935.29<br><br>Internal methods based on AOAC 900.02, 920.93, 920.153, 923.03, 925.51, 945.46<br><br>Internal method/ Elemental analyzer based on AOAC 990.03, 992.23, 997.09<br><br>Internal methods based on AOAC 920.39, 945.38, 945.39, 948.22, 960.39, 989.05, 932.06, 933.05<br><br>Internal method based on AOAC 996.06 (LATi83)<br><br>Internal method based on AOAC 991.43 (LATi84)<br><br>Internal method based on AOAC 982.14, 977.20 |

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| | Energy,<br>Carbohydrates | <br>Computanionally method<br>Computanionally method |
| | 3. Determination of metals-contaminats (Cd, Pb, Hg, As, Sn, Ni, Cr, Cu, Fe, Mn, Zn) | Internal method based on AOAC 2015.01/ICP-MS |
| | 4. Determination of metals (Fe, Mn, Cu, Zn, P, K, Ca, Mg Na) | Internal method/ ICP-OES |
| 14. Milk and milk products | 1. Determination of of mycotoxins/aflatoxins (aflatoxin M1) | Internal method/ LC-MS/MS |
| 15. Soil | 1. pH Measurement | Ratio Soil:Water 1:2, pH meter |
| | 2. Electrical Conductivity Measurement | Ratio Soil:Water 1:2, EC meter |
| **Microbiological Tests** | | |
| 1. Potable water, surface water and swimming pool water | 1. Detection and enumeration of intestinal enterococci | ISO 7899-2:2000 |
| | 2. Enumeration of *E. coli* and coliforms | ISO 9308-1: 2014 |
| | 3. Enumeration of culturable microorganisms at 22°C and 37°C | ISO 6222:1999 |
| | 4. Enumeration of *Pseudomonas aeruginosa* | ISO 16266:2006 |
| | 5. Enumeration of *Clostridium perfringens* | ISO 14189:2013 |
| 2. Water with an expected low concentration of interfering microorganisms Matrix A | 1. Enumeration of *Legionella* spp. | ISO 11731:2017 [procedure 8, 9 and 10, medium A and medium C] |
| 3. Treated waste water from treatment plant | 1. Enumeration of *E. coli* and coliforms | ISO 9308-1: 2014 |
| 4. Foodstuffs and animal feeding stuffs | 1. Enumeration of beta-glucuronidase-positive *Escherichia coli* | ISO 16649-2:2001 |
| | 2. Detection and enumeration of *Enterobacteriaceae* | ISO 21528-2:2017 |
| | 3. Enumeration of coliforms | ISO 4832:2006 |
| | 4. Enumeration of microorganisms at 30oC | ISO 4833-1:2013 |
| | 5. Detection of non-typhi, non-paratyphi *Salmonella* spp. | ISO 6579-1:2017 |
| | 6. Enumeration of coagulase-positive staphylococcus (*Staphylococcus aureus* and other species) | ISO 6888-1:2021 |
| | 7. Detection of *Listeria monocytogenes* | ISO 11290-1:2017 |
| | 8. Enumeration of yeasts and moulds at 25ºC with $\alpha_w > 95$ % | ISO 21527-1: 2008 |
| | 9. Enumeration of yeasts and moulds at 25ºC with $\alpha_w \leq 95$ % | ISO 21527-2: 2008 |
| | 10. Enumeration of presumptive *Bacillus cereus* - Colony-count technique at 30ºC | ISO 7932:2004 |

| Tested materials / products | Types of test / Properties | Applied standards / Techniques |
|---|---|---|
| **Immunochemical Tests** | | |
| 1. Food | 1. Determination of almond | In house method (LATi69) based on ELISA kit Allergen-Shield Almond (ProGnosis Biotech) |
| | 2. Determination of peanut | In house method (LATi69) based on ELISA kit Allergen-Shield Peanut (ProGnosis Biotech) |
| | 3. Determination of walnut | In house method (LATi69) based on ELISA kit Allergen-Shield Walnut (ProGnosis Biotech) |
| | 4. Determination of hazelnut | In house method (LATi69) based on ELISA kit Allergen-Shield Hazelnut (ProGnosis Biotech) |
| | 5. Determination of milk | In house method (LATi69) based on ELISA kit Allergen-Shield Total Milk (ProGnosis Biotech) |
| | 6. Determination of gluten | In house method (LATi69) based on ELISA kit Allergen-Shield Gluten S (ProGnosis Biotech) |
| | 7. Determination of soy | In house method (LATi69) based on ELISA kit Allergen-Shield Soy (ProGnosis Biotech) |
| | 8. Determination of egg | In house method (LATi69) based on ELISA kit Allergen-Shield Egg (ProGnosis Biotech) |
| | 9. Determination of sesame | In house method (LATi69) based on ELISA kit Allergen-Shield Sesame (ProGnosis Biotech) |
| | 10. Determination of mustard | In house method (LATi69) based on ELISA kit Allergen-Shield Mustard (ProGnosis Biotech) |
| | 11. Determination of fish | In house method (LATi69) based on ELISA kit Allergen-Shield Fish (ProGnosis Biotech) |
| **Sampling** | | |
| Potable water from municipal distribution systems | Determination of chemical parameters | ISO 5667-1:2023<br>ISO 5667-3:2024<br>ISO 5667-5:2006 |

* American Public Health Association, American Water Works Association, Water Environment Federation, "Standard Methods for the Examination of Water and Wastewater", 24th Edition, 2023

** Methods highlighted with (**) have been assessed and conform to the performance criteria described in Υ.Α. Δ1(δ)/ΓΠ οικ. 27829/2023 (ΦΕΚ 3525/Β` 25.5.2023) "Water quality of human consumption"

Site of assessment: **Laboratory permanent premises, 14th kmThessaloniki-Poligyrou, Thermi, Thessaloniki.**
Approved signatories: **Marios Maroulis, Maria-Vaia Perikli, Pavlos Maroulis**

This scope of Accreditation replaces the previous one, dated 16.04.2025.
The Accreditation Certificate No. **848**-5, according to ELOT EN ISO/IEC 17025:2017, is valid until 06.12.2029.

Athens, 12th of October 2026

Konstantinou Evangelos Apostolos
*CEO of ESYD*