



SCOPE OF ACCREDITATION TO ISO/IEC 17043:2023

QUALITY ASSURANCE AND TESTING CENTER 3 (QUATEST 3)

**Proficiency Testing – Reference Materials Department:**

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PROFICIENCY TESTING PROVIDER

Valid To: September 30, 2029

Certificate Number: 3477.01

In recognition of the successful completion of the A2LA evaluation process, this proficiency testing provider has been found to meet the ISO/IEC 17043:2023, “Conformity Assessment – General requirements for the competence of proficiency testing providers”. Accreditation is granted to this provider to provide proficiency testing samples in the following programs:

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>1. Chemistry in Food</b> 1.1 Lipid 1.2 Protein 1.3 Total Ash 1.4 Calcium 1.5 Lactose 1.6 Phosphorus 1.7 Saturated fat 1.8 Total carbohydrate 1.9 Sodium 1.10 Energy 1.11 Moisture 1.12 Acid-insoluble ash 1.13 Water-insoluble ash 1.14 Crude fiber 1.15 Water-soluble matter (coffee) 1.16 Caffeine (coffee) 1.17 Sulfated ash 1.18 Total sugar (as glucose, as sucrose) 1.19 Acid value 1.20 Soluble solids at 20 °C (Brix)	Food and Beverage	Assigned values and uncertainties determined by consensus values from participants

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>2. Nutrients in Liquid Milk</b> 2.1 Protein 2.2 Fat 2.3 Dry matter 2.4 Relative density 2.5 Acid value (as lactic acid)	Liquid Milk	Assigned values and uncertainties assigned by consensus values from participants
<b>3. Toxins and Residues in Food</b> 3.1 Heavy metals (Pb, Cd, As, Hg, Cu, Zn, Sb, Sn, etc.) 3.2 Mycotoxins (Aflatoxins, Ochratoxin A, Deoxynivalenol, etc.) 3.3 Antibiotics (Tetracyclines, Chloramphenicol, etc.) 3.4 $\beta$ -Agonist (Salbutamol, Clenbuterol, Ractopamine) 3.5 Pesticide residues (Carbaryl, Carbofuran, Tebuconazole, Chlopyrifos Methyl, Chlopyrifos Ethyl, Malathion, Ethyl Parathion, Methyl Parathion, Fenitrothion, Diazinon, Endosulfan Sulfate, Heptachlor, Aldicarb, Indoxacarb, Imidacloprid, Thiamethoxam, Dimethoate, etc.) 3.6 Food additives (Nitrite, nitrate, sodium benzoate, benzoic acid, potassium sorbate, sorbic acid) 3.7 Other residues (Malachite Green, Leucomalachite Green)	Food and Beverage	Assigned values and uncertainties assigned by consensus values from participants

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>4. Chemistry in Animal Feedstuff</b> 4.1 Protein 4.2 Fat 4.3 Calcium 4.4 Phosphorus 4.5 Total Ash 4.6 Amino acids (Lysine, Methionine, Threonine) 4.7 Salbutamol 4.8 Heavy Metals (Pb, Cd, As, Hg) 4.9 Aflatoxins 4.10 Clenbuterol 4.11 Ractopamine 4.12 HCl-insoluble ash 4.13 Crude fiber 4.14 Moisture 4.15 Minerals (Cu, Zn, Fe, Mn, Na, K, Se, etc.) 4.16 Ethoxyquin 4.17 Cyanhydric acid 4.18 Flouride 4.19 Free and total gossypol 4.20 NaCl 4.21 Ammoniacal nitrogen (N-NH <sub>3</sub> )	Animal Feedstuff	Assigned values and uncertainties determined by consensus values from participants
<b>5. Chemistry in Sauce</b> 5.1 Nitrogen (N) 5.2 Ammonical nitrogen (N-NH <sub>3</sub> ) 5.3 Sodium Chloride (NaCl) 5.4 Amino acid nitrogen 5.5 Inorganic arsenic, total arsenic 5.6 Acid (as acetic acid) 5.7 pH	Sauce (Fish sauce, soy sauce)	Assigned values and uncertainties assigned by consensus values from participants
<b>6. Chemistry in Fats and Oils (Vegetable, animal)</b> 6.1 Iodine value 6.2 Peroxide value 6.3 Free fatty acids content (as oleic acid) 6.4 Saponification value 6.5 Insoluble impurities 6.6 Water 6.7 Moisture and volatile matter at 105 °C	Vegetable Oil, Animal Fats	Assigned values and uncertainties assigned by consensus values from participants

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>7. Chemistry in Wine</b> 7.1 Ethanol 7.2 Methanol 7.3 Aldehydes (Chromatography, Titration) 7.4 Esters (Chromatography, Titration) 7.5 Furfural	Wine, Spirit Liquid	Assigned values and uncertainties assigned by consensus values from participants
<b>8. Chemistry in Fertilizer</b> 8.1 Total nitrogen content, nitrate nitrogen (N-NO <sub>3</sub> ) 8.2 Soluble and available phosphorus content 8.3 Soluble and available potassium content 8.4 Total and available silicon content 8.5 Calcium content (Ca) 8.6 Magnesium content (Mg) 8.7 Sulfur content (S) 8.8 Iron content (Fe) 8.9 Zinc content (Zn) 8.10 Copper content (Cu) 8.11 Manganese content (Mn) 8.12 Total organic matter 8.13 Arsenic content (As) 8.14 Cadmium content (Cd) 8.15 Lead content (Pb) 8.16 Nickel content (Ni) 8.17 Chromium content (Cr) 8.18 Mercury content (Hg) 8.19 Humic acid 8.20 Fulvic acid 8.21 Moisture 8.22 Biuret 8.23 Free acids (as P <sub>2</sub> O <sub>5</sub> , as H <sub>2</sub> SO <sub>4</sub> , and as HNO <sub>3</sub> ) 8.24 Water-soluble boron 8.25 Acid-soluble boron 8.26 Cobalt content (Co) 8.27 Molybdenum content (Mo) 8.28 pH 8.29 Density 8.30 Relative density	Fertilizer	Assigned values and uncertainties determined by consensus values from participants

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>9. Chemistry in water</b> 9.1 Cations: Fe, Cu, Zn, Mn, Ca, Mg, K, Na, total hardness, Al, Ba, B, Cd, Cr, Co, Pb, Mo, Ni, Ag, Si, As, Sb, Se, Hg, etc. 9.2 Anions: NO <sub>2</sub> <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> , PO <sub>4</sub> <sup>3-</sup> , NH <sub>4</sub> <sup>+</sup> , etc. 9.3 pH 9.4 Conductivity 9.5 Total dissolved solids (TDS) 9.6 Total suspended solids (TSS) 9.7 Permanganate index 9.8 Radioactivity	Water	
<b>10. Heavy Metals in Soil</b> 10.1 Arsenic content (As) 10.2 Cadmium content (Cd) 10.3 Lead content (Pb) 10.4 Mercury content (Hg) 10.5 Copper content (Cu) 10.6 Zinc content (Zn) 10.7 Chromium content (Cr) 10.8 Nickel content (Ni)	Soil	Assigned values and uncertainties assigned by consensus values from participants
<b>11. Chemistry in Diesel Oil</b> 11.1 Sulfur content 11.2 Cetane index 11.3 Distillation 11.4 Flash point closed cup 11.5 Kinematic viscosity 11.6 Pour point 11.7 Density 11.8 Water	Diesel oil	Assigned values and uncertainties assigned by consensus values from participants
<b>12. Chemistry in Lubricant</b> 12.1 Kinematic viscosity 12.2 Viscosity index 12.3 Flash point open cup 12.4 Total base number (TBN) 12.5 Density at 15 °C 12.6 Foaming tendency 12.7 Water content 12.8 Total metals (Ca, Mg, Zn) 12.9 Copper strip corrosion 12.10 Pentane insolubles 12.11 Sulfated ash	Lubricant	Assigned values and uncertainties assigned by consensus values from participants

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>13. Fuel oil</b> 13.1 Density 13.2 Kinematic viscosity 13.3 Sulfur content 13.4 Pour point 13.5 Flash point closed cup 13.6 Ash content 13.7 Conradson carbon 13.8 Water content 13.9 Sediment 13.10 Calorific	Fuel oil	Assigned values and uncertainties determined by consensus values from participants
<b>14. Gasoline</b> 14.1 Reid vapor pressure 14.2 Density 14.3 Distillation 14.4 Copper corrosion 14.5 Gum 14.6 Sulfur content 14.7 Benzene 14.8 Aromatic hydrocarbon 14.7 Olefin 14.8 Oxygen 14.9 Oxygenate (ethanol, iso-propyl alcohol, iso-butyl alcohol, tert-butyl alcohol, ether (C ≥ 5), MTBE, etc.) 14.10 Metals: Pb, Fe, Mn, total metals (Fe, Mn), etc. 14.11 Water	Gasoline	Assigned values and uncertainties determined by consensus values from participants
<b>15. Hard coal</b> 15.1 Ash 15.2 Volatile matter 15.3 Sulfur 15.4 Calories 15.5 Fixed carbon 15.6 Moisture (dry in air and dry with nitrogen) 15.7 C 15.8 H 15.9 N	Coal and Coke	Assigned values and uncertainties assigned by consensus values from participants  Assigned value using CRM

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<p><b>16. Food contact materials</b>  16.1 Immigration test: Heavy metals in aqueous extract, in acetic acids (Pb, Cd, Hg, etc.)  16.2 Immigration test: Phenol, formaldehyde in water  16.3 Immigration test: Dry residue in water, ethanol 20 %, acetic acid 4 %, heptane  16.4 Metals: Pb, Cd, As, Ba, Cr, Hg, Zn, etc.  16.5 Diphenyl carbonate</p>	<p>Food contact materials (paper, plastic, metal, ceramic, glass etc.)</p>	<p>Assigned values and uncertainties assigned by consensus values from participants</p> <p>Assigned value using CRM</p>
<p><b>17. Chemistry and Mechanic – Physics in Steel</b>  17.1 Tensile test (Upper yield strength, tensile strength, elongation after fracture)  17.2 Chemical composition: (C, Mn, Si, S, P, Cr, Ni, B, V, Cu, Al, Ti, etc).  17.3 Hardness (Vicker, Rockwell, etc)  17.4 Bend test  17.5 Impact test (KV8, etc)</p>	<p>Steel</p>	<p>Assigned values and uncertainties assigned by consensus values from participants</p>
<p><b>18. Physics – Chemistry in Cement</b>  18.1 Compressive strength (3 days, 7 days, 28 days, etc.)  18.2 Water for consistent  18.3 Initial setting time  18.4 Final setting time  18.5 Soundness (Le Chatelier method)  18.6 Sieve 0.09 mm  18.7 Sieve 0.045 mm  18.8 Mass density  18.9 Surface fineness  18.10 Insoluble residue content  18.11 SO<sub>3</sub> content  18.12 MgO content  18.13 CaO content  18.14 Soluble Na<sub>2</sub>O content  18.15 Soluble K<sub>2</sub>O content  18.16 Al<sub>2</sub>O<sub>3</sub> content  18.17 Fe<sub>2</sub>O<sub>3</sub> content  18.18 SiO<sub>2</sub> content  18.19 Loss on ignition  18.20 Chloride content (Cl-)  18.21 Autoclave expansion</p>	<p>Cement</p>	<p>Assigned values and uncertainties determined by consensus values from participants</p>

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>19. Chemistry in Limestone</b> 19.1 CaO 19.2 MgO	Limestone	Assigned values and uncertainties determined by consensus values from participants
<b>20. Chemistry in granulated blast furnace slag</b> 20.1 CaO 20.2 MgO 20.3 Al <sub>2</sub> O <sub>3</sub> 20.4 SiO <sub>2</sub>	Limestone	Assigned values and uncertainties determined by consensus values from participants
<b>21. Physics in Concrete</b> 21.1 Density 21.2 Compressive strength	Concrete	Assigned values and uncertainties assigned by consensus values from participants
<b>22. Electrical Wire/ cable</b> 22.1 Direct Current (DC) Resistance of 1 km Conductor at 20 °C 22.2 Thickness of sheath 22.3 Tensile test (tensile strength, elongation after fracture of cable insulation) 22.4 Insulation resistance at 70 °C	Electrical Wire	Assigned values and uncertainties assigned by consensus values from participants
<b>23. LED lamps</b> 23.1 Wattage 23.2 Luminous flux 23.3 Luminous efficacy 23.4 Correlated color temperature (CCT) 23.5 Coloring rendering (CRI)	LED lamps	Assigned values and uncertainties assigned by consensus values from participants  Direct comparison with reference laboratory

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<p><b>24. Microbiology in Food and Feedstuff</b></p> <p>24.1 Total Aerobic Plate Count (Enumeration)</p> <p>24.2 <i>Escherichia coli</i> (Detection/Enumeration)</p> <p>24.3. <i>Staphylococcus aureus</i> / coagulase-positive staphylococci (Enumeration)</p> <p>24.4 Coliforms (Enumeration)</p> <p>24.5 <i>Salmonella</i> spp. (Detection)</p> <p>24.6 <i>Listeria monocytogenes</i> (Detection)</p> <p>24.7 Yeasts and Molds (Enumeration)</p> <p>24.8 <i>Vibrio parahaemolyticus</i> (Detection/Enumeration)</p> <p>24.9 Enterobacteriaceae (Enumeration)</p> <p>24.10 <i>Bacillus cereus</i> (Enumeration)</p> <p>24.11 <i>Clostridium perfringens</i> (Enumeration)</p> <p>24.12 Total sulfite-reducing anaerobes (Enumeration)</p> <p>24.13 Total anaerobic count (Enumeration)</p> <p>24.14 <i>Escherichia coli</i> (Detection)</p> <p>24.15 <i>Listeria</i> spp. (Detection)</p> <p>24.16 <i>Vibrio cholera</i> (Detection)</p> <p>24.17 <i>Saccharomyces cerevisiae</i> (Enumeration)</p> <p>24.18 <i>Pseudomonas aeruginosa</i> (Enumeration)</p> <p>24.19 Presumptive <i>Bacillus cereus</i> (Enumeration)</p> <p>24.20 <i>Vibrio vulnificus</i> (Detection)</p> <p>24.21 <i>Escherichia coli</i> O157 (Detection)</p>	<p>Food and feedstuff (Meat, milk, cereal, aquatic products, nutritious powder, beverages, feedstuff, etc.)</p>	<p>Quantitative Test: Assigned values and uncertainties assigned by consensus values from participants.</p> <p>Qualitative test: Assigned values determined by consensus value from participants and derived from the formulation of PT samples as well as be verified by homogeneity and stability checks.</p>

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<p><b>25. Microbiology in Water</b></p> <p>25.1 Total plate count (Enumeration)  25.2 Coliforms (Enumeration)  25.3 Fecal Coliforms (Enumeration)  25.4 <i>Escherichia coli</i> (Enumeration)  25.5 Enterococci (Enumeration)  25.6 Positive coagulase Staphylococci/  <i>Staphylococcus aureus</i> (Enumeration)  25.7 Yeast and moulds (Enumeration)  25.8 Spores of sulfite-reducing anaerobes (Enumeration)  25.9 <i>Clostridium perfringens</i> (Enumeration)  25.10 Total sulfite-reducing anaerobes (Enumeration)  25.11 <i>Pseudomonas aeruginosa</i> (Enumeration)  25.12 Salmonella spp. (Detection)</p>	Water	<p>Quantitative Test: Assigned values and uncertainties assigned by consensus values from participants.</p> <p>Qualitative test: Assigned values determined by consensus value from participants and derived from the formulation of PT samples as well as be verified by homogeneity and stability checks.</p>
<p><b>26. Microbiology in Fertilizer</b></p> <p>26.1 <i>Escherichia coli</i> (Enumeration)  26.2 Salmonella (Detection)  26.3 Nitrogen fixing microorganisms (Enumeration)  26.4 Phosphate-solubilizing microorganisms (Enumeration)  26.5 Cellulose-solubilizing microorganism (Enumeration)</p>	Fertilizer	<p>Quantitative Test: Assigned values and uncertainties assigned by consensus values from participants.</p> <p>Qualitative test: Assigned values determined by consensus value from participants and derived from the formulation of PT samples as well as be verified by homogeneity and stability checks.</p>
<p><b>27. Microbiology in Probiotics</b></p> <p>27.1 <i>Bacillus</i> spp. (Enumeration)  27.2 <i>Bacillus subtilis</i> (Enumeration)  27.3 <i>Lactobacillus</i> spp. (Enumeration)  27.4 <i>Lactobacillus acidophilus</i> (Enumeration)</p>	Probiotics	<p>Quantitative Test: Assigned values and uncertainties assigned by consensus values from participants.</p> <p>Qualitative test: Assigned values determined by consensus value from participants and derived from the formulation of PT samples as well as be verified by homogeneity and stability checks.</p>

<u>Program Name</u>	<u>Sample Matrix</u>	<u>Techniques Used to Determine Assigned Values / Uncertainty</u>
<b>28. Microbiology in Swab (Swab test)</b> 28.1 Total aerobic plate count (Enumeration) 28.2 Coliforms (Enumeration) 28.3 <i>Escherichia coli</i> (Enumeration) 28.4 <i>Salmonella</i> spp. (Detection) 28.5 <i>Listeria monocytogenes</i> (Detection)	Swab	Quantitative Test: Assigned values and uncertainties assigned by consensus values from participants.  Qualitative test: Assigned values determined by consensus value from participants and derived from the formulation of PT samples as well as be verified by homogeneity and stability checks.
<b>29. Interlaboratory comparison programs when there are less than 5 participants (usually for 2 laboratories)</b>	Accredited matrices listed	Assigned values and uncertainties come from a reference laboratory, reference material / certified reference material, or the organized PT program



# Accredited Proficiency Testing Provider

A2LA has accredited

## QUALITY ASSURANCE AND TESTING CENTER 3 (QUATEST 3)

*Dong Nai Province, VIETNAM*

This accreditation covers the specific proficiency testing schemes listed on the agreed upon Scope of Accreditation. This provider is accredited in accordance with the recognized International Standard ISO/IEC 17043: 2023 *Conformity assessment - General requirements for the competence of proficiency testing providers*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.



Presented this 12<sup>th</sup> day of November 2025.

A blue ink signature of Mr. Trace McInturff, written in a cursive style.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3477.01  
Valid to September 30, 2029

*For the proficiency testing schemes to which this accreditation applies, please refer to the provider's Scope of Accreditation.*