

Year in Review: “Cultivating Leaders and Connecting Analytical Communities”

This year, AOAC celebrated 140 years of analytical excellence, marking an anniversary for an Association that, simply put, has evolved. From its modest beginnings focused on arbitrating methods of analysis for three fertilizer elements (phosphoric acid, potash, and nitrogen), today AOAC provides a suite of



AOAC Executive Director David B. Schmidt

analytical solutions to handle new generations of products and analytes in the areas of food, infant formula, botanicals and dietary supplements, cannabis, microbial pathogen detection, gluten and food allergens, biothreat detection, and more. Since its founding in 1884, the Association has delivered nearly 3,100 *Official Methods*SM and 170 *Standard Method Performance Requirements* (SMPRs[®]; since the inception of SMPRs in 2009), among other valuable outputs. AOAC responds to changing needs and continues to be relevant to the stakeholders and communities it serves.

ILM reflects on a year devoted to “Cultivating Leaders and Connecting Analytical Communities,” the theme of the 138th AOAC Annual Meeting and Exposition. AOAC made significant strides in its integrated and core science programs, advancing existing initiatives while scanning the horizon for emerging hot topics that lead to opportunities for 2025.

Here’s a look at what AOAC was up to in 2024 and where the Association is headed.

Standards Development

AOAC started the year off strong, with no signs of slowing. The Association was proactive in developing new science programs and projects and delivering

analytical solutions for global recognition to address the most pressing issues identified as priorities by stakeholders. This year saw the launch of the following areas in need of standards development:

- Botanical identity verification
- Dairy protein hydrolysates
- Ethylene oxide residues in foods
- Additional trace elements
- *Legionella* in water
- Metagenomic sequencing for biothreat detection
- Milk fat globule membrane (MFGM) protein in infant formula and adult nutritionals
- Novel foods from alternative protein sources, with amino acid analysis as the first priority project
- Per- and polyfluoroalkyl substances (PFAS) in food contact materials

Some of these have been developed into new initiatives this year and others are gaining momentum and support as potential new projects for 2025.

Among this year's many highlights, AOAC approved new SMPRs for:

- Selected pesticides in color additives
- Trace elemental contaminants
- *Cyclospora cayetanensis*
- Amplicon sequencing for biothreat detection
- Ethylene oxide residues

Draft SMPRs for MFGM proteins in infant formula and adult/pediatric nutritional formula are nearing completion and others are underway.

*Official Methods*SM

The AOAC Expert Review Panel (ERP) on Enzymatic Methods approved eight new First Action *Official Methods*SM for:

- Acetic acid
- Citric acid
- Glucose
- Sucrose/glucose
- Glucose/fructose
- D-lactic acid
- L-lactic acid
- D- and L-lactic acid

Also in methods news, Final Action status was granted to methods for beta-galactooligosaccharides, lactoferrin, and dietary fiber.

Method modifications included those for *Listeria*, *Listeria monocytogenes*, and *Salmonella* (new workflows and matrix extensions).

Standard Guidance

In support of the AOAC Gluten and Food Allergens Program (GFA), AOAC approved and published revised guidance on food allergen immunoassay validation, superseding Appendix M in the *Official Methods of Analysis*SM (OMA) compendium.



Core and Integrated Science Programs

AOAC continued to expand and grow its impact and relevance in the areas of infant formula and adult nutritionals, gluten and food allergens, botanical ingredients and dietary supplements, cannabis, biothreat detection, microbiology, chemical contaminants, and, more recently, novel foods from alternative protein sources, dairy protein hydrolysates, and PFAS in food contact materials.

Research Institute

In 2024, 12 new methods were granted *Performance Tested Methods*SM (PTM) status, and 25 were approved as modifications of PTM certifications.

The AOAC Research Institute (RI) has been busy working on internal processes to enhance services provided. Much of this effort is driven by a customer survey conducted in spring 2024. In addition, the RI is continuing to roll out its new certificate format which organizes information and provides easier access to supporting data. Finally, the RI is developing new service offerings. Watch for them soon.

Proficiency Testing

AOAC's Laboratory Proficiency Testing Program (LPTP) experienced much growth this year in the areas of Food and Environmental and Hemp and Cannabis. The AOAC Hemp and Cannabis dried flower/biomass programs were added to the AOAC scope of accreditation to ISO 17043 in February 2024. These programs include chemical constituents; cannabinoids, terpenes, moisture,

water activity, and chemical contaminants; heavy metals; pesticides; and mycotoxins. In October 2024, six AOAC Hemp Oils (<0.3% THC) and Cannabis Oils (>0.3% THC) proficiency testing programs were added to AOAC's scope of accreditation. In addition to the analytes listed above for dried flower/biomass programs, the oils programs offer residual solvents. These programs are the first of their kind by offering ready to analyze, homogeneous hemp or cannabis samples that can be shipped across state lines. AOAC LPTP staff are currently working with the test material provider for hemp and cannabis, Signature Science, LLC, in developing both hemp edibles (<0.3% THC) and cannabis edibles (>0.3% THC), which will be available in 2025.

AOAC LPTP staff, along with the advisory task force and Signature Science, LLC, also developed programs for microbiological contaminants in a dried hemp flower/biomass matrix. The pilot occurred in early 2024, and the first live round is scheduled for late 2024.

In the area of Food and Environmental, both Shiga toxins and Enterococcus were added as analytes to the Standard Microbiology programs in response to participant feedback. These analytes have also been added to AOAC's scope of accreditation.

Analytical Solutions Forum

The AOAC Analytical Solutions Forum (ASF) continues to be a valuable platform to advance existing programs, scan the horizon for the analytical needs of tomorrow, and bring in new ideas to drive new program development. ASF is a starting point for many new AOAC programs. Novel foods from alternative protein sources and PFAS are just some recent examples of emerging topics introduced through ASF that are now implemented as new AOAC programs.

AOAC is in the early stages of development of new scientific initiatives for topics that were introduced this year through ASF, such as analysis of chemical contaminants from food contact materials, dietary fiber and other carbohydrates, vitamins in food and dietary supplements, organic produce authenticity, and rapid testing of illicit drugs in tablets and powders. The latter is gaining traction as AOAC INTERNATIONAL recently received a U.S. National Institute of Standards and Technology (NIST) Measurement Science and Engineering (MSE) grant for development of testing standards for illicit drugs, including fentanyl, xylazine, and nitazenes.

Infant Formula

Infant formula manufacturers are increasingly adding MFGM as an ingredient in products for nutritional purposes. However, legislation for ingredient label claim varies. In response, an AOAC working group has developed draft SMPRs to meet regulatory requirements and support label claims, which are in the final stages of community consensus.

AOAC launched a working group to develop SMPRs for characterization of dairy protein hydrolysates.

The AOAC ERP for Stakeholder Program on Infant Formula and Adult Nutritionals (SPIFAN) Nutrient Methods has recommended to revise “Appendix L: AOAC Recommended Guidelines for SPIFAN Single-Laboratory Validation (SLV)” of the OMA compendium to include terms and definitions for the infant formula and follow-up formula matrix categories. The proposed revised guidelines, which were posted for public comment, are nearing consensus voting.

To date, 23 AOAC SPIFAN Final Action *Official Methods of Analysis*SM for nutrients in infant formula are referenced by the Codex Alimentarius Commission and also recognized as International Standards.

AOAC’s proposals for dietary fiber and nutrients in follow-up formula were endorsed on October 2-6, 2024, at the 44th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU):

- Adoption of 20 AOAC *Official Methods*SM for follow-up formula, which were previously approved by Codex for infant formula
- Replacement of AOAC *Official Method*SM **2011.25** for dietary fiber with *Official Method*SM **2022.01** as a Type I method for the measurement of soluble, insoluble, and total dietary fiber

These proposals now advance to the Codex Committee on Methods of Analysis and Sampling (CCMAS) for consideration of endorsement at its 44th session on May 5–9, 2025, in Budapest, Hungary.

Biothreat Detection

The AOAC Stakeholder Program on Agent Detection Assays (SPADA), AOAC’s longest standing stakeholder program, continues to successfully build a standard program for development, validation, and use of threat agent detection technologies. To this day, the initiative continues to be extended to other priority agents and technologies.

In 2024, SPADA reached consensus on SMPRs for amplicon sequencing assays. With this approval, AOAC launched on October 22, 2024, a working group to develop standards for metagenomic approaches for biodefense applications.

Cannabis and Hemp

This year marked 5 years of successful collaboration to bridge gaps in methodologies in the regulatory framework and provide analytical solutions accomplished through consensus by the AOAC Cannabis Analytical Science Program (CASP). Since its inception in March 2019, the CASP initiative has resulted in numerous advances in standards, *Official Methods*SM, and other tools in AOAC's suite of analytical solutions urgently needed by the cannabis and hemp community.

The CASP Microbial Contaminants Working Group developed draft validation guidelines to provide comprehensive technical guidance for conducting microbiological method validation studies for analysis of cannabis and cannabis products and draft SMPRs for detection and enumeration of *Listeria monocytogenes* in cannabis-infused edibles to address analytical gaps in methodology and regulatory requirements. Both are being revised based on public comments and will be posted for community consensus.

The 'Pesticide Method Think Tank' Working Group reached consensus on three main deliverables, which are in process: method development handbook, pesticide characteristics and MRM database, and curated references and tools for pesticide residue analysis in cannabis and cannabis-derived products.

Gluten and Food Allergens

Working groups for the AOAC GFA Program developed method validation guidance for both gluten and food allergens. "Guidelines for Validation of Qualitative Gluten Methods, with Specific Examples of Lateral-Flow Devices" were approved and will be published by AOAC. The draft document for "Guidelines for Validation of Quantitative Gluten Methods" has been posted on the AOAC website for a public comment period.

Approved in April 2024, "Guidance on Food Allergens Immunoassay Validation" was published in July 2024 as Appendix M of the OMA compendium and can be found on the AOAC and OMA websites. The document includes major updates to Appendix M. Method developers and independent labs participating in validation studies will find guidance on both quantitative and qualitative methods.

Working groups are moving into the next phase to develop end user guidance. Initial priorities include sampling, method selection and verification, and data interpretation.

Microbiological Methods

SMPRs for detection, identification, and characterization of *Cyclospora cayentanensis*—the first project under the AOAC INTERNATIONAL Microbiological Standards (AIMS) Program—were approved in August 2024.



Standards development activities for detection and quantification of *Legionella* in water are underway. Methods are needed that can detect, enumerate, and identify *Legionella* and differentiate between viable and nonviable cells in potable water and/or nonpotable water, including structures that aerosolize water.

Botanicals and Dietary Supplements

In support of the AOAC Botanical Ingredients and Dietary Supplement Integrity (BIDSI) Program, AOAC launched an initiative on botanical identity verification. The working group is initially focusing on revising and updating Parts II and III of “Appendix K: Guidelines for Dietary Supplements and Botanicals” of the OMA compendium based on current challenges and practicality.



Stakeholders identified the growing popularity of mushrooms as an opportunity to develop standards and validate methods to address variability, ensure product quality and safety, and meet label claims, among other needs.

Membership

This year saw a notable increase in organizational memberships, reflecting the Association’s growing partnerships and the value many organizations find in AOAC’s offerings. While individual memberships have slightly declined, AOAC

is optimistic about the potential for growth in this area next year. With new initiatives and tailored benefits on the horizon, the Association is confident that individuals will see even more value in joining the AOAC community. AOAC looks forward to re-engaging and expanding this segment in the year to come.

Sections

In an effort to foster increased support, participation, and engagement, AOAC reorganized the 10 AOAC Sections in North America (Central, Midwest, Mid-Atlantic, Southern, Mid-Canada, Pacific Northwest, Pacific Southwest, Southern California, New York, and Northeast) into five regional Sections: Pacific, Atlantic, Midwest, Southern, and Mid-Canada. The reorganization was approved by the AOAC Board of Directors based on a recommendation from the Committee on Sections to reorganize North American Sections as satellites overseeing activities and needs in their region.



With the reorganization, AOAC INTERNATIONAL now has 15 Sections connecting analytical communities in the United States and worldwide, representing five continents and more than 120 countries.



This year, the AOAC Southeast Asia Section was recognized as Section of the Year for its role in advancing analytical excellence in the areas of food safety, food integrity, and public health.

The Sections Fair, new to this year's Annual Meeting program, was a successful networking opportunity to learn more about AOAC Sections, activities, and how to get involved.

Annual Meeting and Exposition

AOAC connected with members and stakeholders at the 138th Annual Meeting and Exposition in Baltimore, Maryland, USA. With 31 scientific sessions, 10

AOAC science program meetings, 10 community meetings, 56 exposition booths, 200 poster presentations, and daily receptions, the AOAC Annual Meeting was a hub of analytical science dialog and networking by members and stakeholders who have a passion for the best science. This year's attendance of 718 exceeded last year's meeting attendance in New Orleans of 696.

Attendees and staff formally commemorated AOAC's 140th anniversary at the Annual Meeting. The celebration continued as AOAC recognized its own **Deborah McKenzie**, deputy assistant executive director and chief standards officer, who received the first-ever award for exemplary staff performance over a minimum of 20 years.

Publications

OMA

Digital presentation of OMA content was streamlined to make it easier for users to find specific AOAC *Official Methods*SM and SMPRs needed in research. These enhancements take users directly to the methods or SMPRs. Additional new features included the ability to view and print PDFs of individual methods and improved navigation to the indices for subjects, method numbers, and SMPRs. AOAC and Oxford University Press (OUP) are continuously working to provide the most up-to-date material and optimal user experience for OMA Online.

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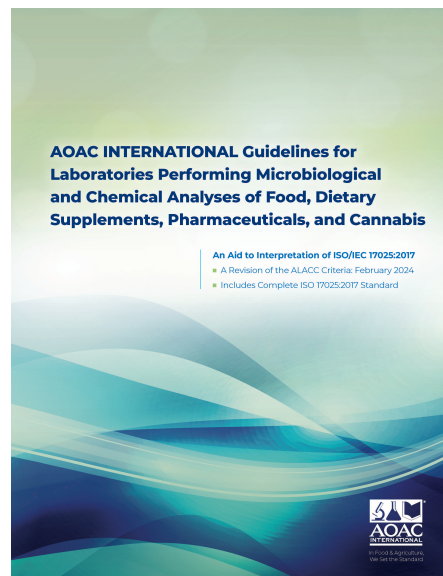
Starting with the January/February 2024 issue, the *Journal of AOAC INTERNATIONAL* featured a redesigned cover, evoking a new era of publishing for AOAC and communicating the scope and contents of the journal.

The AOAC Editorial Board terms of reference were changed and approved by the AOAC Board of Directors during the 138th AOAC Annual Meeting. As a result, a much larger editorial board is expected that will help review manuscripts in respective topic areas, champion *J. AOAC Int.*, invite authors to submit manuscripts, and identify Special Guest Editor Sections on hot topics.

ALACC

The latest revision of the *AOAC INTERNATIONAL Guidelines for Laboratories Performing Microbiological and Chemical Analyses of Food, Dietary Supplements, Pharmaceuticals, and Cannabis* was approved and published in 2024.

The AOAC laboratory accreditation guidelines, developed by the AOAC Analytical Laboratory Accreditation Criteria Committee (ALACC) and available in print and online, provide accredited laboratories with detailed criteria to aid in assessing the essential requirements for performing these types of analyses. For the first time, an appendix for cannabis is included in the guidelines to aid accredited laboratories and laboratories seeking accreditation for cannabis and hemp testing.



ILM

Beginning with the January/February 2024 issue, *Inside Laboratory Management* switched to a digital-only platform. The November/December 2023 issue was the last printed magazine.

The May/June 2024 issue introduced a redesign to a more dynamic digital platform for a better reading experience with responsiveness to all screen sizes and more accessibility options over PDFs, flipbooks, and the prior platform.

Task Forces

Engaging Early-Career Researchers

In line with this year's theme to cultivate leaders, AOAC Past President **Mary Kay Krogull**, Eurofins, focused on engaging students and early-career researchers to bring new perspectives and grow a future pool of experts and leaders for AOAC. Based on survey results from early-career researchers and their managers, the AOAC task force gathered valuable information to help develop programs, such as training, communications, and expansion of networks, which are hoped to be offered in the near future. The goal is to inspire professionals early in their careers to become even more active members in AOAC, while strengthening and sustaining the Association into the future.



Revamping OMA Program

The AOAC Official Methods Board (OMB) established a task force to redesign and rebuild the *OMA* Program to ensure continued relevance and reliability to meet today's changing landscape. The task force is focusing on restructuring the design of AOAC *Official Methods*SM to improve clarity and streamline delivery to users, standardizing method procedures by drawing on valuable learnings from past and present processes, and standardizing supporting documentation to ensure consistency across all platforms.

Opportunities in 2025

The importance and contributions of AOAC and its members and stakeholders continue to rise, and this past year was no different. AOAC keeps the momentum going as it heads into 2025 with a focus on expanding current initiatives as well as potential ones for functional mushrooms, contaminants in food contact materials, organic produce authenticity, dietary fiber and other carbohydrates, and vitamins.

In addition, there are potential opportunities to assess fitness for purpose of SPIFAN methods for verification of Codex provisions for Codex Standard CXS 72-1981 (Section B: Formula for Special Medical Purposes Intended for Infants) and CXS 156-1987 (Section B: Products for Young Children) and revise AOAC-ISO/IDF methods.

For more information on AOAC initiatives or to participate, click [here](#).

Thank you, members, stakeholders, volunteers, and partners for making 2024 a success and for being part of the AOAC community. The Association is excited about what we can achieve together in 2025 and looks forward to more advances in collaboration and innovation.