



CASE STUDY

Specialized ingredient support for quality applications

Unpacking ADM's Sensory Science Services and Oils Expertise



Understanding sensory quality and functionality of oils

Oils play a vital role in an application's sensory characteristics and ensuring their consistent quality. ADM's sensory science experts, alongside oil technical experts, can help you understand the influence of oil flavors and their functional attributes in applications. With a reputation for food oil expertise in the industry and an array of leading-edge resources, our team can help deliver the answers to your most important edible oils questions, including:

- What flavor characteristics are associated with the broad portfolio of oils ADM processes?
- How does ADM maintain consistency in flavor across multiple oil processing facilities?
- Will switching my frying oil alter the overall flavor of my product?
- How does ADM modify oils and fats to achieve certain tastes, textures or melting points?
- Will switching to an oil with a different melting point in order to promote handling impact my application's flavor release?
- What methodology would ADM's experts recommend to evaluate oil in a formulation change?



Creating a sensory delight

ADM's specialized Sensory Science Program evaluates the different properties of oils and how they holistically impact our multiple senses. Controlled testing and feedback from our trained panelists are used to evaluate samples, optimize

formulations and guide the product development of our customers.

Established in lab fundamentals and best practices, our experts contribute unbiased data to support your projects. This enables you to make smart decisions regarding oils in your formulations, ensuring your applications always deliver the quality consumers expect.



What ADM's sensory science best practices means for our customers:

- Results that are valid and repeatable, so you have quality data
- Sensory quality for all food oil shipments
- Industry-leading resources to answer your oils questions
- Research that leads to meaningful advancements for your applications

ADM's capabilities in sensory analysis for edible oils

1 Quality Testing and Technical Training

WHAT IT IS: ADM has a long-established quality assurance program during oil production and tests all food oil ingredients before they are shipped to ensure our customers receive quality products. ADM facilities utilize industry standards to grade shipments of oils, providing that grade on every COA.

When collaborating on projects with you, we can provide critical technical expertise for your team across a range of needs, including: developing a common lexicon for sensory team members, conducting training on specific descriptors and intensities or blind taste testing oil samples to level scoring between organizations.

BEST USED FOR:

- Establishing "gold standard" identification and maintenance
- Ensuring a manufacturing plant's daily product remains calibrated and accurate
- Understanding and comparing oil flavor upon receiving shipments
- Utilizing same scale and lexicons when working on projects
- Developing knowledge of an ingredient's impact to overall formulation and end flavors through small group evaluation cohorts
- Tracking inconsistencies or breakdowns in manufacturing processes
- Investigating and troubleshooting root causes of consumer complaints



Our training offerings allow us to more easily collaborate with your team on joint projects



Sensory 101

Establishes the foundational principles for anyone new to sensory science



Sensory Capabilities

For anyone who wants to know about the tools and methods available in sensory science to conduct product learning



Product Specific

For anyone wanting to establish a standardized language to describe particular characteristics for evaluations in their product category



Small Group Evaluations

For anyone responsible for leading group evaluations during early-stage prototyping of products



2 Descriptive Analysis

WHAT IT IS: A foundational tool in sensory science, descriptive analysis is used to identify and understand the intensities of the different character types of oils. It involves a comprehensive assessment of an oil's aromatics, feeling factors and texture/mouthfeel, enabling a more holistic understanding of its properties.

This testing establishes the terminology that makes for more effective communication between supplier and customer regarding flavor characterization. Descriptive analysis can be applied to a singular ingredient as well as a food system. With ADM's wide pantry of food solutions, our in-house descriptive panel is versed not only in oil, but a wide array of ingredients, allowing them to fully support descriptive analysis on food systems.

BEST USED FOR:

- New ingredient profiling
- Competitive ingredient matching
- Ingredient substitutions
- Flavor and aroma improvements
- Concept alignment
- Storage and handling impacts

3 Discrimination Testing

WHAT IT IS: Discrimination testing determines if two products are perceivably different. This testing validates that modifications result in finished products that are as close as they can be to the original, so that processing or formulation changes are blind to the consumer.

Our discrimination testing is performed using experienced panelists from a pool of more than 300 qualified ADM employees who can provide fast top-line results on any product.

BEST USED FOR:

- Productivity and cost reduction efforts through oil modifications
- Processing and formulation changes
- Modifications for cleaner and clearer labels
- Competitive product matching

CASE SUMMARIES

Real-world examples of our applied sensory science



DESCRIPTIVE ANALYSIS

QUESTION: How will altering the blend ratio of a frying oil affect the overall flavor characteristics of a fried potato product?

ADM's descriptive analysis team evaluated the potato product fried in both the test oil and the control—in blinded intervals—to identify what characteristics were impacted including potato intensity, fried flavor, beany/green notes and other flavor descriptors.

DISCRIMINATION TESTING

QUESTION: If we switch to ADM oils in order to increase supply to our production facilities, will that impact the flavor and texture of our doughnut applications?

Our sensory team blind taste tested finished samples of the doughnuts sent by the manufacturer to ADM, and concluded that no differences were discernible between the test doughnuts and the doughnuts fried with ADM oils.



Our oils expertise is your competitive edge

Data-driven answers are critical to your success and we're ready to support you with the resources that get you the answers you need, when you need them. Our Sensory Science Program for Oils is part of ADM's extensive network of capabilities to help you get to market faster by fueling innovation and product development.

- Over 100 years of oil production leadership and expertise
- Comprehensive research and global development network
- State-of-the-art innovation center and culinary facilities
- Oil specialists for application support and product development
- Advanced pilot plant and laboratories

Your value-added partner

With a team like ADM, you have the resources and expertise needed to ensure quality oils and consistent performance in your applications.

www.adm.com/oils

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