



ORACLE™
Rapid NMR Fat Analyzer



70.26%
FAT
ORACLE

The First Rapid NMR Fat Analyzer with No Method Development

ORACLE™ is the first ever rapid fat analyzer that requires absolutely no method development for total fat analysis. At the touch of a button, ORACLE can analyze fat in any sample with reference chemistry accuracy, without prior knowledge of the sample matrix or composition. Simply press the run arrow and ORACLE delivers an exceptionally accurate and precise fat result in as little as 30 seconds.

A Breakthrough in NMR Technology

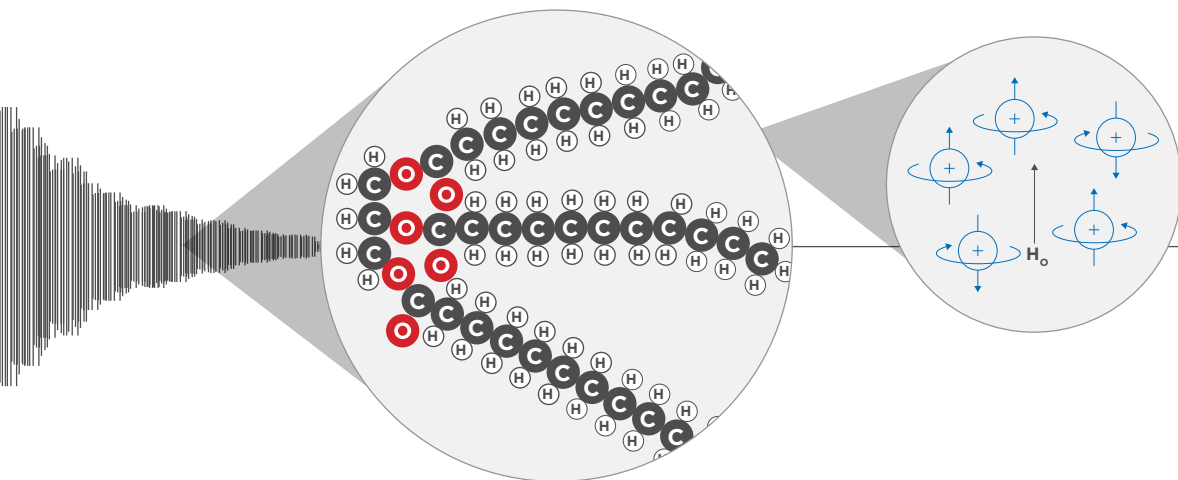
Specialized ORACLE NMR technology completely isolates the detection of the proton signal in fat molecules from all other compositional proton sources (i.e. protein, carbohydrate, ash), making a universal fat analyzer possible. Adapting the CPMG pulse sequence allows for direct total fat analysis, providing an alternative to reference methods, such as Mojonnier, Weibull-Berntrop, Rose-Gottlieb, and others. In addition, no solvents are utilized, a critical safety improvement over traditional extraction methods. Alternative rapid techniques are often indirect, utilizing calibrations based on physical or surface characteristics of the sample that must be maintained to provide an approximate fat value. Other direct rapid techniques are unable to fully isolate fat from other components, requiring methods or extensive calibration maintenance. The ORACLE system does not have these limitations, delivering accurate, precise total fat results regardless of formulation changes or sample development work.

Features

- Rapid, 30-second Analysis
- Analyze Any Sample from 0.02% - 100.00% Fat
- Precise — Better Repeatability than Wet Chemical Extraction Techniques

Validation

- ISO 16756:2024 | IDF 259:2024 (Total fat analysis for milk and milk products via CPMG TD-NMR)
- AOAC Official Method 2008.06 (Moisture and fat in meats)
- AOAC PVM 1:2004 (Moisture/solids and fat in dairy products)



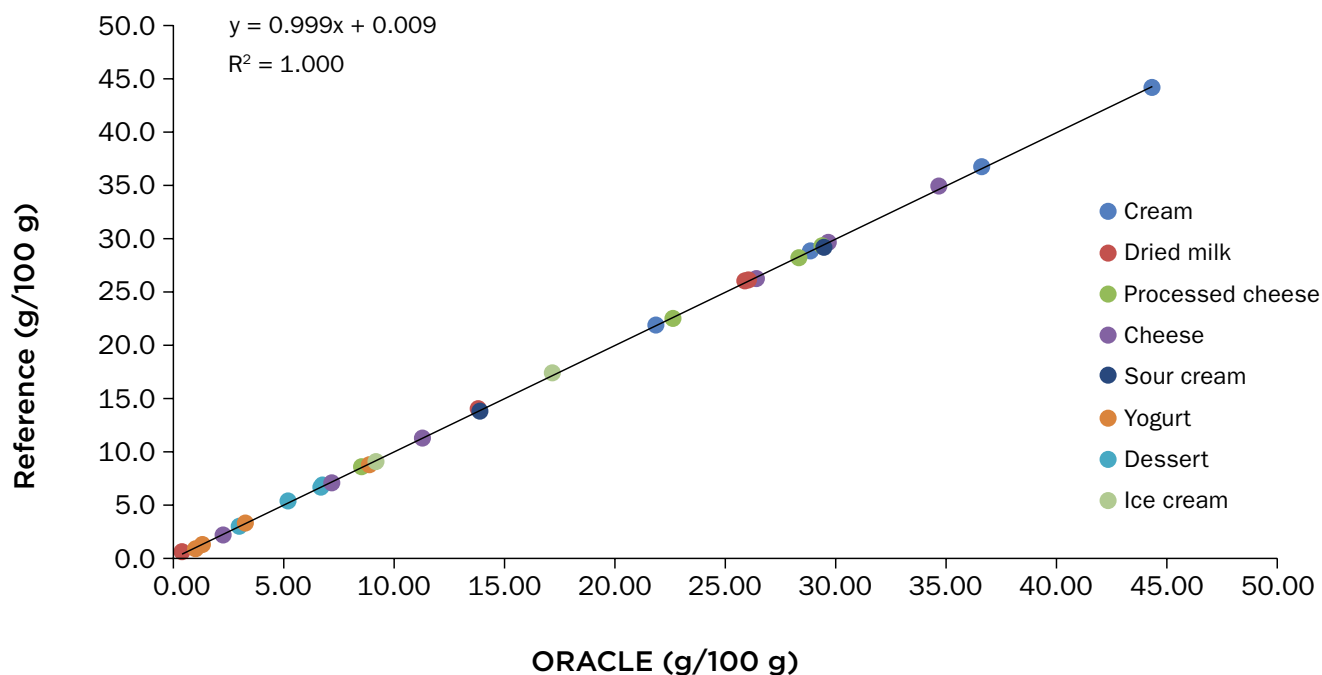
Accurate Analysis of Any Sample

ORACLE underwent an extensive dairy evaluation at ACTALIA Cecalait (Poligny, France) with exceptional results.¹ Several matrices were examined, including: cream, powdered milk, processed and natural cheese, sour cream, yogurt, dessert, and ice cream, spanning a range of 0.42 – 44.33% fat.

Actalia Concluded:¹

- “The ORACLE instrument presents a good performance of repeatability for all the products and below reference method limits.”
- “For accuracy, we can observe a very good performance (slope and bias closed respectively to 1.00 and 0.00, and mean difference of +0.02 g/100 g). The samples have been analysed on the ORACLE system using the same parameters, bringing to the conclusion, the instrument is very robust.”

ORACLE Accuracy All Samples¹



¹ ACTALIA Cecalait. Newsletter No. 103. 1st quarter 2018, p.3. cecalait.fr/en/lettre (accessed April 28, 2025).

Consistent Results Anywhere in the World

ORACLE systems are manufactured and designed to produce consistent results worldwide, making the system an ideal solution for corporations seeking to standardize rapid instrumentation. The normalization procedure ensures that regardless of environment, electronics, or age, each system will operate and interpret the signal in the same manner.

Many rapid fat analyzers are susceptible to differences in optics and system components, which prevents users from transferring calibrations between various locations. That means that each system requires unique method, or calibration, development, ultimately translating to the substantial investment of resources and capital.

Since the ORACLE does not require method development and systems are normalized, users can rest assured that all sites will get the same accurate, consistent results. What does that mean? A pet food distributor in Texas will get the same accurate ORACLE fat result as its parent manufacturer in California and the primary fish and meat suppliers in Australia and Japan.



Testimonials

“The CEM ORACLE Fat Analyzer has demonstrated the ability to eliminate daily calibrations used with previous technology for a broad range of samples while maintaining high sample accuracy and precision. As one of the global leaders in food testing this is very beneficial for our testing needs.”

Timothy Lumb / Chemistry Manager
[Food & Pharmaceuticals ALS](#)
Chatteris, Cambridgeshire, UK

“While using the CEM NMR based system, we have accurate fat and moisture analysis. The CEM NMR based system is convenient and easy to use with repeatability also better compared to other systems. This allowed us to optimize our process by having consistent results from raw to finished product.”

Nathan G. Labante / Quality Assurance Supervisor
[Saputo Dairy Foods USA, LLC](#)
White Bear Lake, MN



Meat



Dairy



Processed



Powders

Animal Feed	Corn Oil	Lamb	Pork
Beef	Cream	Mayonnaise	Salmon
Butter	DDG/DDGS	Milk	Sausage
Wet Cake	Digestive Biscuit	Non-Dairy Powder	Sour Cream
Cheese	Dough	Noodles	Stillage
Chicken	Dressings	Nutritional Drinks	Syrup
Chips & Crackers	Duck	Organ Tissue	Up-cycled Food
Chocolate	Egg Whites	Peanut Butter	Venison
Cod	Gravy	Pet Food	Wheat Flour
Coffee Creamer	Ice Cream Mix	Plant-based Drinks	Whey
Cookies	Infant Formula	Plant-based Foods	Yogurt

Rapid Analysis in Less than 5 Minutes

Pair the ORACLE and SMART 6™ for rapid moisture/solids and fat analysis in one system. The SMART 6 utilizes dual-frequency energy to rapidly analyze moisture/solids in any product, wet or dry, in approximately three minutes. By combining microwave and infrared, the two energy sources work in unison and provide significant advantages over infrared-only and microwave-only technologies. The system comes preprogrammed with a library of optimized drying methods for pairing with the ORACLE.



Automated High-throughput Processing

Process up to 100 samples unattended on the ORACLE + Robot. The robot can be used with up to two high-throughput precision heater blocks designed specifically to temperature condition large batches of samples effectively. After the samples are loaded in the heater block(s) a delay can be set on the ORACLE and individual samples will be run sequentially without assistance. Data is stored for each sample and can be reviewed at any time.



Barcode Scanner

A barcode scanner is included with each system for easy record keeping and tracking across sample lots.



Sample Pads

CEM Sample Pads are approved for use in AOAC methods. They are tested to ensure they meet requirements for absorbency, moisture content, and mechanical strength.



Trac Film

Trac Film™ is a proprietary, proton-free film specifically designed to minimize interference during total fat analysis on CEM NMR based systems.



ORACLE Tubes

These specialized tubes are for holding samples in the ORACLE. Like Trac Film, ORACLE tubes are designed to minimize interference and ensure accurate fat analysis.



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