

CEM

ORACLE™

Rapid NMR Fat Analyzer



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 fat only analysis. At the touch of a button, ORACLE can analyze fat in any food sample with reference chemistry accuracy, without any prior knowledge of the sample matrix or composition. Simply press the run arrow and ORACLE delivers an exceptionally accurate and precise fat result in 30 seconds.

A major breakthrough in NMR technology.

This newly developed technique, achieved in 2016, completely isolates the detection of the proton signal in fat molecules from all other compositional proton sources (i.e. protein, carbohydrate, ash) making universal fat analysis possible. Alternative rapid techniques are unable to fully isolate fat from other components, which is why extensive calibration development is often required.

Features

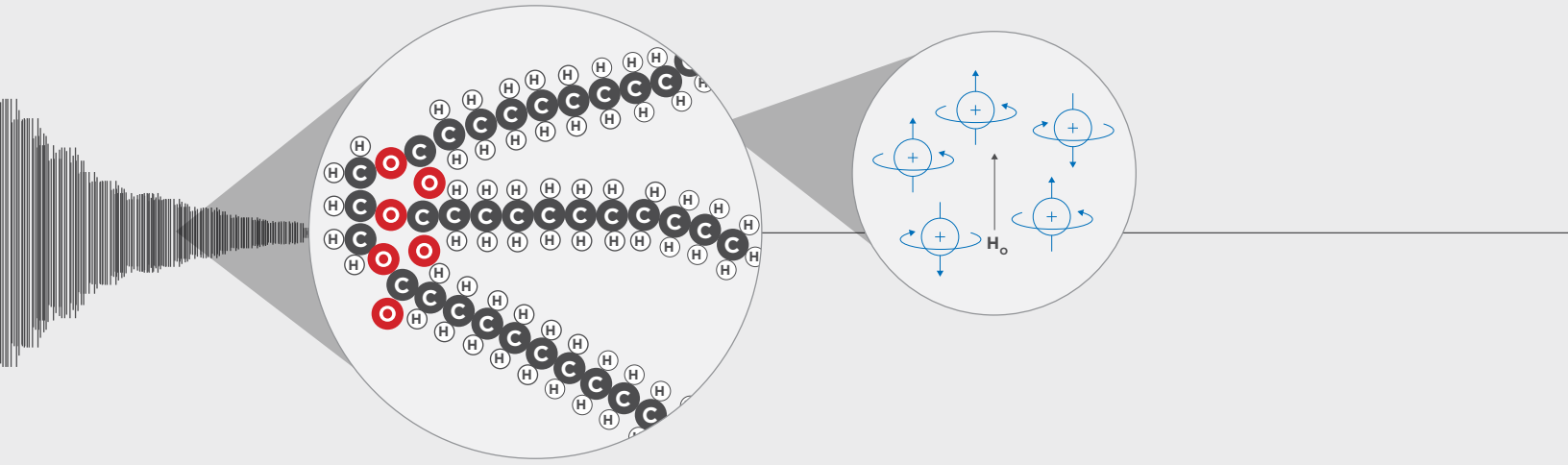
- Rapid, 30-Second Analysis
- Analyze any sample from 0.05 – 100.00% fat
- Direct isolation and measurement of hydrogen protons on fat molecules
- Precise- better repeatability than wet chemical extraction techniques

Validation

- AOAC official method 2008.06 (Moisture and Fat in Meats)
- AOAC PVM 1:2004 (Moisture/Solids and Fat in Dairy Products)

Awards

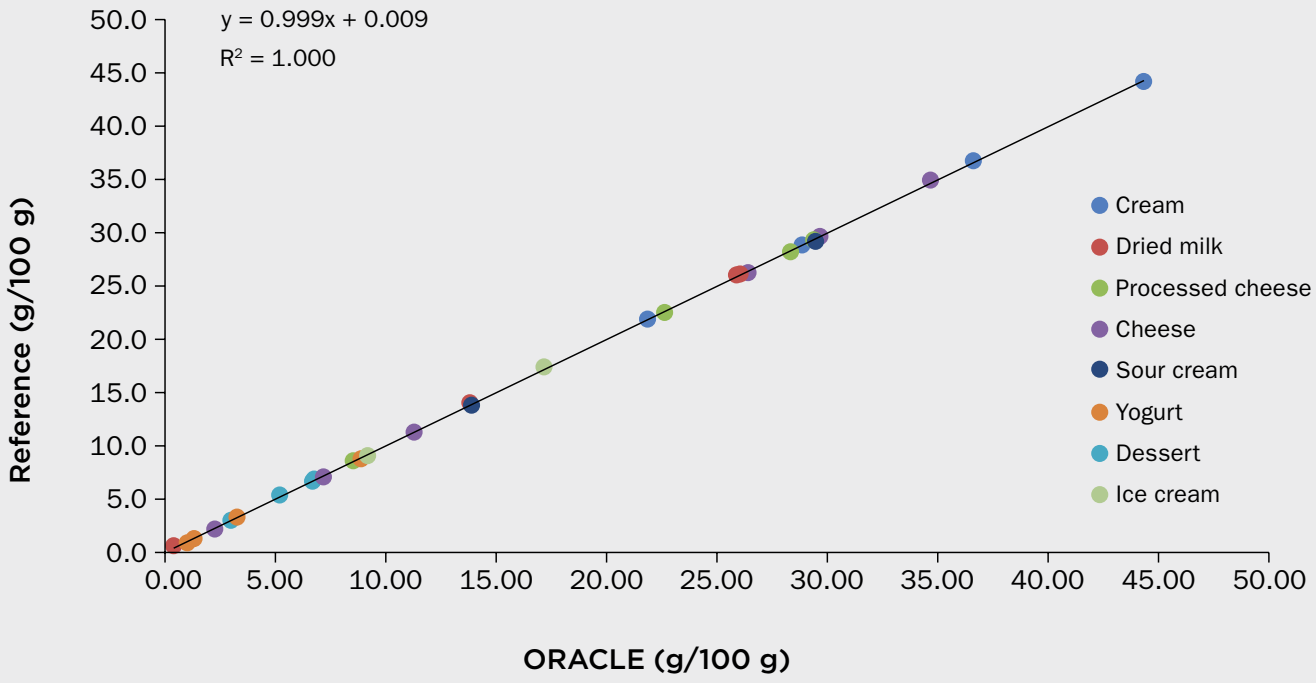
- 2017 Institute of Food Technology Expo Innovation Award
- Named among top 3 new products at Pittcon 2017 by *Instrument Business Outlook*



Rapid analysis in less than 5 minutes.

Pair the SMART 6™ Moisture & Solids Analyzer with the ORACLE for rapid moisture/solids and fat in one system. The SMART 6 utilizes dual-frequency energy to rapidly analyze moisture/solids in any product, wet or dry, in approximately 3 minutes. The system comes preprogrammed with a library of optimized drying methods for pairing with the ORACLE. By combining microwave and infrared, the two energy sources work in unison and provide significant advantages over infrared-only and microwave-only technologies.





Get an accurate analysis of any food sample.

ORACLE underwent an extensive dairy evaluation at Actalia Cecalait (Poligny, France) with exceptional results. Actalia is a COFRAC accredited laboratory that specializes in providing technical and scientific input for the validation and unification of analytical methods, with expertise in dairy analysis. Several matrices were examined, including: cream, powdered milk, processed and natural cheese, sour cream, yogurt, dessert, and ice cream, spanning a range of ca. 0.5 – 45.0 % fat. Actalia concluded that the ORACLE was able to match reference chemistry (within error) and was more repeatable than reference chemistry for all samples.









Analyze fat in any food sample in less than 30 seconds.

Meats

- Beef
- Chicken
- Cod
- Duck
- Lamb
- Pork
- Salmon
- Turkey
- Venison

Dairy

- Butter
- Cheese
- Cream (Heavy)
- Egg Whites
- Formula (Infant)
- Ice Cream Mix
- Milk
- Sour Cream
- Yogurt

Processed

- Chips & Crackers
- Coffee Creamer
- Cookies
- Dog Food
- Dough
- Dressings
- Mayonnaise
- Noodles
- Nutritional Drinks

Powders

- Cheese
- Coffee Creamer
- Dairy
- Formula (Infant)
- Gravy
- Milk
- Non-Dairy
- Wheat Flour
- Whey

Get consistent results, anywhere in the world.

All ORACLE systems produce the same results worldwide, making them an ideal solution for corporations seeking to standardize rapid instrumentation. Alternative rapid fat analyzers are susceptible to differences in optics and system components, which prevents them from transferring methods between various locations. That means that each system requires unique method development, which ultimately translates to extensive time and capital. Plus, there's no guarantee that the results will match.

Since ORACLE does not require method development and all the systems are the same, 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.





ORACLE will fit right into your workflow.

ORACLE is so easy to use, there is no chemist required. It's as simple as the touch of a button and removes operator to operator variability entirely. It can be used in a laboratory, or at-line on a production floor. Just walk up to the system, press the run arrow, enter the sample ID and mass, and get a fat result in less than 30 seconds. All data can be exported to USB or LIMS (Laboratory Information Management System) networks for easy viewing.

Enjoy sophisticated software that is easy to use.

ORACLE comes with an easy to use, highly responsive, touchscreen interface. The software is designed so that anyone can walk up, press the run arrow, and complete an analysis…it's really that simple.

For those users that want to delve deeper into the system functionality, the software includes advanced data processing capabilities, such as data sorting, system diagnostics, quality control tests, data and system export, LIMS connectivity, USB output, and many others. ORACLE can also be paired with a balance to directly capture sample masses or if users prefer to weigh samples in a separate location, the software includes an import function. This is ideal for large testing facilities that run 100's of samples per day and have dedicated sample weighing rooms. Simply insert the USB, select the import icon, and the full batch is automatically populated.



Automated high-throughput processing.

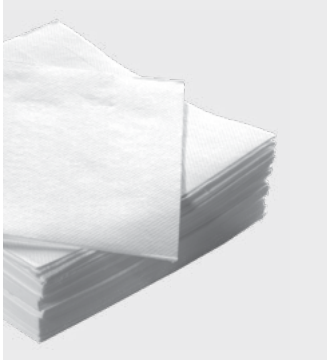
Process up to 100 samples unattended and analyze large batches on the ORACLE with the high-throughput robot accessory. The robot can be used with two high-throughput precision heater blocks that are effective for temperature conditioning large batches of up to 50 samples. Individual samples can then be run sequentially on the ORACLE, in less than 30 seconds. Data analysis is stored for each sample and can be reviewed at any time.





Barcode Scanner

Ergonomic barcode scanner and stand are included with each system. Imports sample barcodes directly into sample ID for data storage and recall. Scans numerous barcode types including UPC, EAN, Code 39, ITF, QR Code, Datamatrix code.



Sample Pads

These pads are tested to ensure they meet the requirements for absorbency, moisture content, and mechanical strength. They are approved for use in AOAC methods.



Trac Film

Our proprietary Trac Film™ sample wrap consists of proton-free components designed to be used with the ORACLE system. Trac Film ensures an absolute minimum interference for fat determination by NMR. Each batch is individually tested to ensure that this standard is continuously met.



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.

ORACLE receives IFT17 Food Expo Innovation Award.

Over 40 entries for the IFT17 Food Expo Innovation Award were submitted and the panel of judges; from industry, academia, and government with expertise in food production and safety, selected the ORACLE for demonstrating time and cost benefits and eliminating use of chemicals while providing a practical, revolutionary technology with high scientific merit. ORACLE is a significant improvement over other methods (ie. reference extraction, NIR, and FT-IR) and allows for rapid testing regardless of amount of fat or matrix.

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

We Simplify Science

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