



# ORACLE

FIRST EVER RAPID FAT ANALYZER  
with No Method Development

# ORACLE

## REVOLUTIONARY NEW Fat Analysis

NMR with No Method Development

Analyze any food sample in  
less than 30 seconds

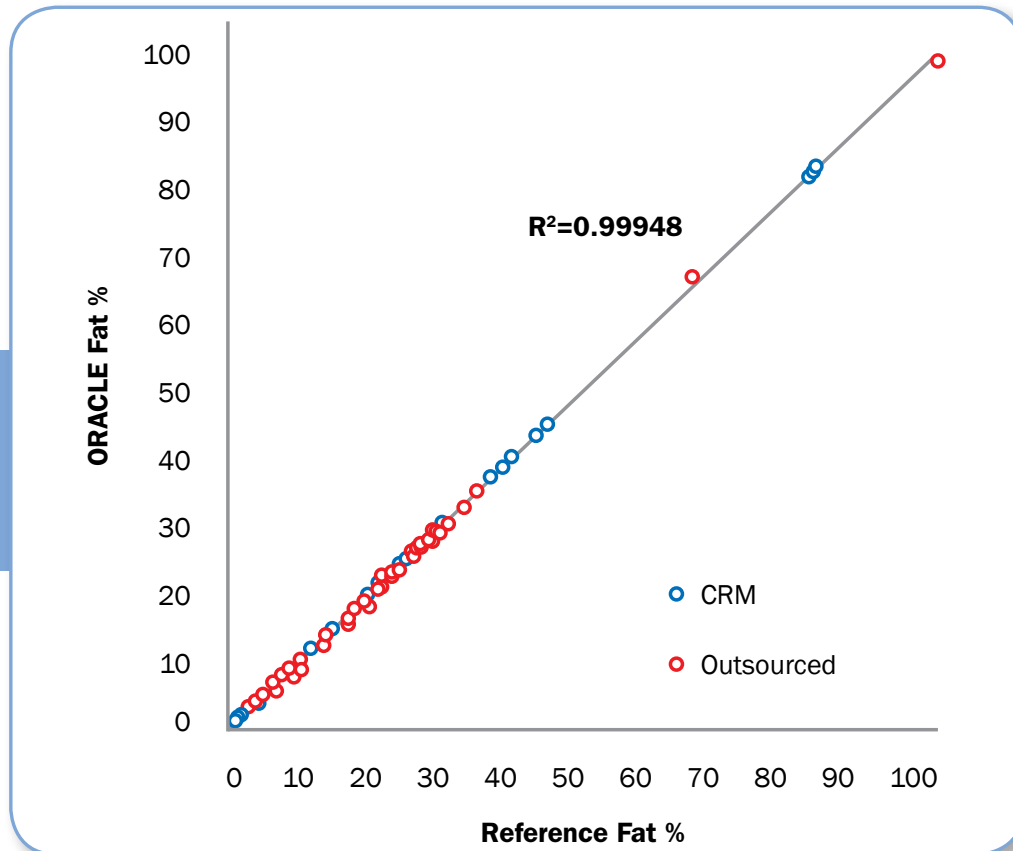
Unmatched repeatability vs.  
wet chemistry techniques





# the result... Accurate Analysis of ANY SAMPLE

ORACLE Fat Values vs. Reference Fat Values



Over 30 Certified Reference Materials (CRM's) from Europe and USA were analyzed on the ORACLE™ as well as hundreds of samples that were outsourced to certified testing laboratories for reference fat analysis. The chart above shows the linearity between the ORACLE fat results and certified reference fat results for both CRM's and outsourced samples.

## ORACLE CAN ANALYZE THESE AND MANY MORE...

Bacon  
Butter  
Cheese  
Cheese (Cream)  
Cheese (Enzyme Modified)  
Cheese (Fresh)  
Cheese (Hard)  
Cheese (Processed)  
Chicken (Deli)  
Chicken (Raw)

Chips (Baked)  
Chips (Corn)  
Chips (Fried)  
Chips (Potato)  
Chocolate (Milk)  
Cod (Raw)  
Coffee Creamer  
Cookies  
Crackers  
Cream (Heavy)  
Dairy (Low-Fat)

Dog Food  
Dough  
Dressings  
Duck  
Egg Whites  
Formula (Infant)  
Gravy  
Gravy Granules  
Ground Beef  
Ham (Deli)  
Hot Dog

Ice Cream Mix  
Lamb  
Milk (Non-Fat)  
Milk (Whole)  
Non-Dairy  
Pork (Raw)  
Salmon (Raw)  
Wheat Flour  
Whey

# exceptional REPEATABILITY



ORACLE is as simple as the touch of a button and **REMOVES** operator to operator **VARIABILITY** entirely. Just walk up to the system and press the arrow to run.



## Eliminate Known Problems with Other Techniques

### Wet Chemistry

- Slow
- Repeatability challenges
- Hazardous chemicals

### Infrared Techniques

- Extensive method (i.e. channel) development
- Analyzes a small amount of sample
- Recalibration often required

### Other NMR Systems

- Some method development
- Uncertainty with unknown samples

## Repeatability (Standard Deviation - SD) ORACLE vs. Wet Chemistry

	ORACLE <sup>a</sup> (SD)	Wet Chemistry <sup>b</sup> (SD)
Raw Pork	0.13	0.37
Cream Cheese	0.75	0.76
Nacho Cheese Chips	0.14	0.33
Infant Formula	0.04	0.07
Pet Food	0.02	0.13
Cream Powder	0.04	0.07

<sup>a</sup>. Samples temperature conditioned in the CEM Precision Heater Block prior to ORACLE analysis

<sup>b</sup>. 4x blind replicates outsourced to two different certified laboratories for solvent extraction analysis

# maximum VERSATILITY



ORACLE is designed for **A WIDE RANGE** of labs, including QC food production facilities, R&D centers, corporate headquarters, and certified testing laboratories.



## High Throughput ⇔ Oven + ORACLE

1. Pre-dry large sample batches in vacuum or convection oven
2. Condition a high volume of samples in the CEM Precision Heater Block (30 minutes)
3. Run samples sequentially in ORACLE for < 30 second analysis each

**Fat**  
**< 30 seconds**

## Rapid ⇔ SMART 6 + ORACLE

1. Rapidly dry individual samples in SMART 6™ (2-4 minutes)
2. Rapid fat analysis in ORACLE

**Moisture + Fat**  
**< 5 minutes**

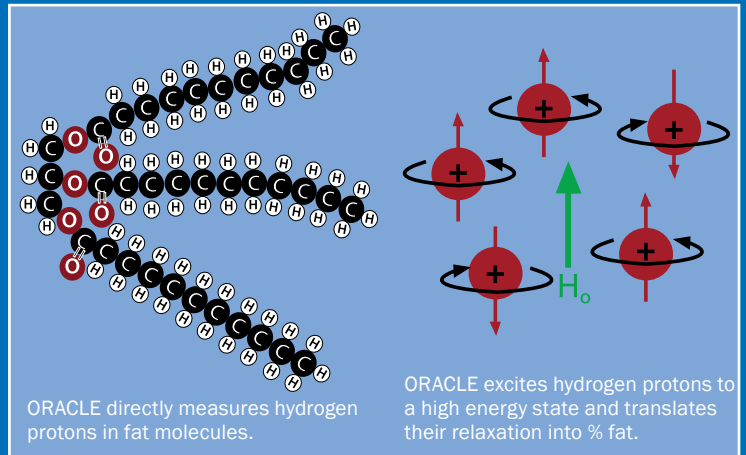
*\*Note: Robot shown above is an optional feature that automatically transfers samples from CEM Precision Heater Blocks to ORACLE for fat analysis.*

# technological **BREAKTHROUGH**

ORACLE is based on patented, breakthrough NMR technology developed in 2016 that completely isolates detection of protons on fat molecules from all other NMR signals. To date, this direct technique has not been achieved with existing rapid techniques (NMR, NIR, FT-NIR), thereby requiring development of different methods for varying sample types that are calibrated with wet chemistry reference results.

## Unique Aspects of ORACLE NMR Technology:

- Completely isolates detection of proton signals on fat molecules from all other sample proton sources
- Rapidly analyze unknown samples with confidence (without method development or wet chemistry reference results)
- Unmatched repeatability versus wet chemistry techniques



## seamless **CORPORATE INTEGRATION**

All ORACLEs are designed to produce the same level of signal.

ORACLE ensures consistent, repeatable results in any location, worldwide.

Ideal for large corporations, seeking to standardize rapid testing instrumentation. Rest easy knowing that ORACLE technology allows all plants worldwide to produce reliable, consistent results, regardless of the sample or operator.

What does that mean?  
A milk powder supplier in Australia will get the same accurate fat result as their milk powder customer in China, in **less than 30 seconds!**

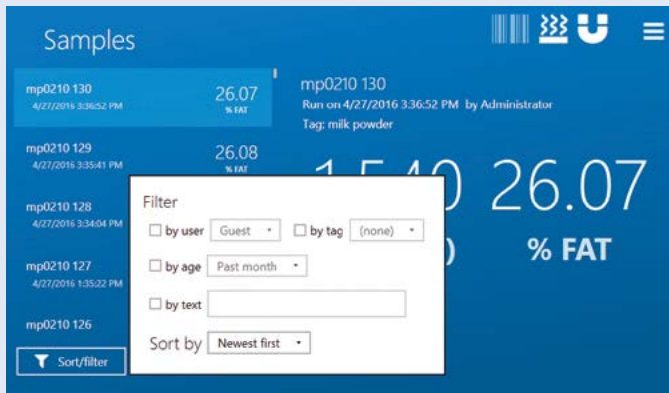
**different locations;  
SAME RESULTS**

# sophisticated SOFTWARE

## with advanced data analysis



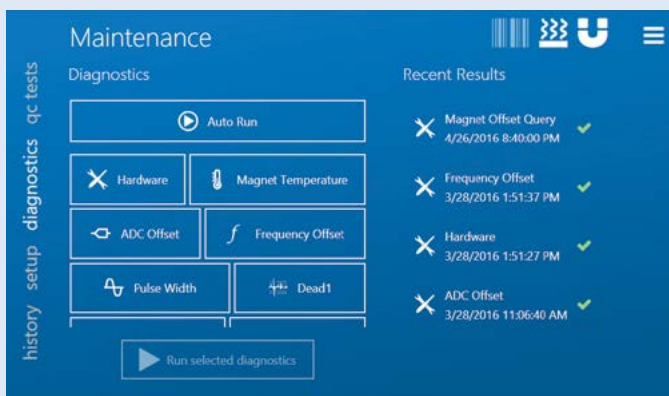
Select individual results for detailed analysis



The ability to sort data , QC tests, and diagnostics



All data can be exported to USB or LIMS (Laboratory Information Management System) networks for easy viewing.



Advanced diagnostics ensure hardware is performing optimally and samples are running accurately



A barcode scanner is included with each system. This enables you to automatically import customer codes into sample ID's.



Over 50,000 systems sold worldwide



CEM has been an ISO-certified facility since 1994



All systems serviced & supported by experts with an average of 15 years of experience



CEM invests 11% of annual revenue into R&D, the result... 11 R&D 100 awards



IQ/OQ/PQ Validation by certified CEM Technicians

“

*Our commitment to you doesn't end when your system is shipped; it begins.*

~Michael J. Collins  
President & CEO, CEM

”

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7,997,790 6,787,362 8,530,239

Worldwide patents issued and pending  
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