



Compositional Analysis

Animal Feeds Industry



Moisture

Fat

Protein

Ash Content



"This new equipment (SMART 6 with CEM's NMR for Moisture and Fat in wet pet food) give us full satisfaction both in terms of its speed and reliability of the results. It fully meets our needs for the production management and for the requirement level of our product's quality."

Cyril GINHOUX / Quality Coordinator
Nestlé Purina Plant (France)

"The CEM NMR and SMART microwave drying technology is invaluable to us in producing our fish products. We can test our product rapidly during production for moisture and fat, to ensure our product is in specification for our customers. Compared to other rapid techniques such as infrared (NIR), NMR provides a precise rapid moisture and fat results. We would highly recommend using CEM's technologies for moisture and fat analysis."

John Emerson / Quality Supervisor
Channel Fish Co. Inc.

Animal Feeds Industry

Analysis Solutions

- Moisture
- Fat
- Protein
- Ash Content



"Our fat results have been much more accurate with CEM's NMR technology than by NIR for our wet pet food. The Phoenix BLACK allows us to rapidly and accurately determine ash levels of cat food to meet required minimum levels much faster than a traditional muffle furnace. Similarly, the Sprint system has provided us rapid protein testing while also being a green replacement for Kjeldahl."

Betty Prouty / QA Lab Tech Lead
Performance Pet

"In the last two years, we have implemented CEM's SMART and NMR technology at various stages in processing orders and have realized an 85% reduction in rejections. CEM's technology provides benefits not possible with other technologies such as near infrared (NIR). This has increased our sales and productivity as well as strengthened our reputation in the pet food industry."

John Pittman / Operations Manager
Cannon Holdings LLC

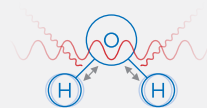
The Most Accurate Analysis of Animal Feeds

- Eliminates calibrations and methods for fat analysis of wet pet food and kibble
- 15-minute ash determination
- Rapid, simple, and green process for protein determination of wet pet food with Sprint®

The animal feeds industry is being subjected to increased regulation every year, and is becoming one of the most competitive markets in the food industry. Every manufacturer needs to ensure their product not only meets required regulations, but is economically viable so it can be offered at a competitive price.

Our technology provides the best in class determination of moisture, fat, protein, and ash content in animal feeds.

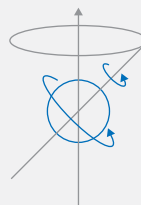
Key Technologies



Dual-Frequency Drying (SMART 6)

- Microwave and infrared energy sources controlled by an intelligent processing system
- Works on any type of sample (liquid, powder, slurry)
- Eliminates sample burning issues
- Recognized as an AOAC approved method

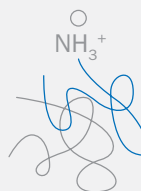
[Learn More: Page 2](#)



NMR (ORACLE)

- Rapid and direct fat analysis
- No method calibrations
- Superior to NIR/FT-NIR
- More repeatable than wet chemistry reference methods

[Learn More: Page 8](#)



iTag (Sprint)

- Easy 3-minute protein test
- Green chemistry replacement for Kjeldahl
- Not affected by non-protein nitrogen

[Learn More: Page 14](#)



Microwave Muffle Furnace (Phoenix BLACK)

- Rapid and easy ash content determination
- Results in only 15 minutes
- Extremely accurate

[Learn More: Page 18](#)



SMART 6™ Microwave + Infrared Moisture & Solids Analyzer





The gold standard in moisture/solids analysis.

Overview

The SMART 6 is the most technologically advanced system in the world for rapid moisture/solids analysis. The system is based on the revolutionary new breakthrough called iPower for sample drying. This patented dual-frequency energy source provides the most rapid and complete drying available, for the widest range of sample types.

Features

- Up to 40% faster than CEM's SMART 5 Turbo
- Analyze both dry and wet products on one system
- Preprogrammed methods for all sample types
- Compact and lightweight for easy at-line placement

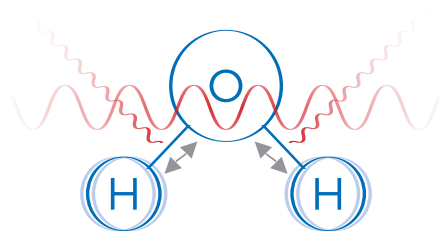
Validation

- 985.14 (AOAC)
- AOAC 2008.06
- AOAC PVM 1.2004



Over 11,000 moisture analyzers sold worldwide

Dual-Frequency Drying

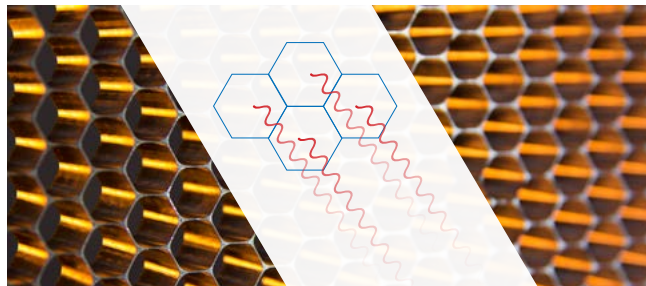


Analyze wet and dry samples with unmatched speed.

An innovative heating process based on the use of a dual-frequency energy source controlled by an intelligent processing system. This prevents burning or incomplete drying, which can arise from other drying technologies. The result is a direct method for virtually any type of sample, with faster drying than traditional microwave or infrared based systems.

- Analyze wet and dry samples with unmatched speed
- Eliminates surface burning
- Little to no “cool down” time between tests

Collimated Energy



Accurate and repeatable results come standard.

Stray infrared irradiation can negatively impact sample temperature readings with the use of infrared temperature sensors. SMART 6 has a unique honeycomb lattice, providing collimated infrared irradiation for sample heating, thereby avoiding stray light. This provides highly accurate temperature control.

- Extremely uniform drying
- Unmatched reproducibility

Time Comparison

Sample	Reference	SMART 6			SMART Turbo	
		SMART 6 Time Savings	Results	Time	Results	Time
Beef (Raw)	67.82% (M)	43%	67.82% (M)	1:57	67.93% (M)	3:26
Cheese (Powder)	2.94% (M)	NEW	2.86% (M)	2:29	Dual-frequency required	N/A
Cheese (Slices)	46.78% (M)	39%	46.51% (M)	1:29	46.49% (M)	2:25
Cream	41.93% (S)	23%	41.91% (S)	1:46	41.75% (S)	2:18
Chicken (Raw)	73.05% (M)	43%	72.88% (M)	2:02	72.96% (M)	3:35
Ham (Deli)	73.85% (M)	39%	74.10% (M)	2:08	74.12% (M)	3:29
Hot dog, Beef	53.53% (M)	42%	53.27% (M)	1:47	53.34% (M)	3:05
Ice Cream	41.38% (S)	24%	41.35% (S)	1:43	41.22% (S)	2:16
Pectin	4.32% (M)	NEW	4.31% (M)	5:32	Dual-frequency required	N/A
Sour Cream	26.31% (S)	34%	26.56% (S)	2:10	26.29% (S)	3:16
Vegetable (Powder)	3.73% (M)	NEW	3.66% (M)	3:37	Dual-frequency required	N/A
Vitamin E (Powder)	2.20% (M)	NEW	2.25% (M)	3:10	Dual-frequency required	N/A
Whey (Powder)	2.65% (M)	NEW	2.72% (M)	5:07	Dual-frequency required	N/A
Yogurt	12.55% (S)	41%	12.70% (S)	1:23	12.67% (S)	2:21

System Comparison



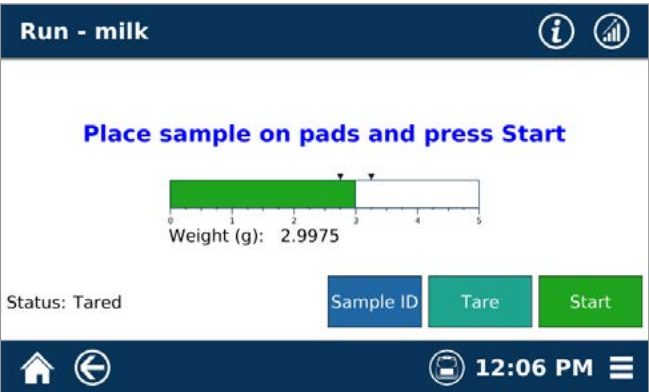
SMART 6™



SMART Turbo™

Removal Species	Free + Bound Moisture Polar + Non-Polar	Free Moisture Polar Volatiles
Moisture/Solids Range	0.01 to 99.9%, 0.01% resolution (optional 0.001%)	0.01 to 99.9%, 0.01% resolution (optional 0.001%)
Drying Energy	Dual-frequency Electromagnetic Irradiation (iPower)	Microwave Energy
Temperature Control	Infrared	Infrared
Balance	<ul style="list-style-type: none"> • 23 grams capacity • 0.1mg readability 	<ul style="list-style-type: none"> • 23 grams capacity • 0.1mg readability
Thermal Nulling (Buoyancy Compensation)	Enhanced with iPower	Standard
Display	7-inch capacitive LCD touchscreen (800 x 600)	Black and White VGA (320x240)
Program/Data Storage	Unlimited	100 methods, 300 results
Data Analysis	Advanced	Standard
System Wake-up	Proximity Detection	Push Button
Exhaust	15,600 RPM (adaptable with speed control)	3,100 RPM (non-adaptable)
Electrical	<ul style="list-style-type: none"> • 115 VAC, 60Hz, 15 Amps • 220-240 VAC, 50Hz, 10 Amps • 100-200 VAC, 50/60Hz, 15 Amps 	<ul style="list-style-type: none"> • 110-127 VAC, 60Hz, 10 Amps • 220-240 VAC, 50/60Hz, 5 Amps • 100 VAC, 50/60Hz, 10 Amps • 200-208 VAC, 50/60Hz, 5 Amps
Footprint	<ul style="list-style-type: none"> • 13.0 (W) x 23.0 (D) in (299 in²) • 33.0 (W) x 58.5 (D) cm (1931 cm²) 	<ul style="list-style-type: none"> • 22.0 (W) x 23.3 (D) in (513 in²) • 55.9 (W) x 59.1 (D) cm (3304 cm²)
Weight	62 lbs (28 kg)	68 lbs (31 kg)

Easy-to-Use



Simply add sample to balance and press “Start”.

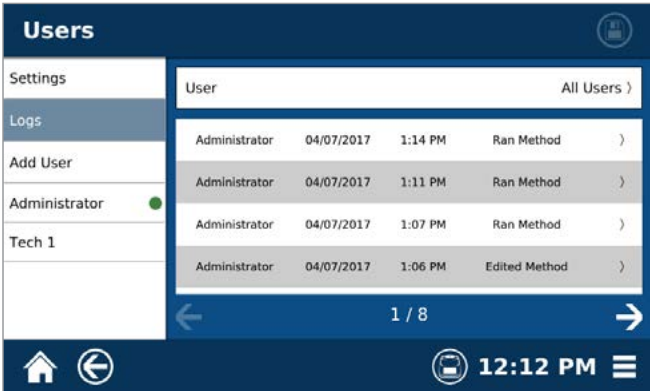


Access real-time run data.

Full 21 CFR Part 11 Compliance



Protect data and methods with a hierarchy of user levels.



Review a complete audit trail with printable records.

Monitor Production Trends



Create SPC charts with user specified limits.



Visualize trends directly on SMART 6 or LIMS network.

Accessories & Consumables



Internal Printer

Thermal impact printer for printing sample results directly from the SMART 6. The printer is located inside the unit thereby not requiring extra space.

Monitor Kit

Specialized solution with measured reference value for verifying SMART 5 or SMART 6 system performance.



AutoCal

Simple and fast NIST traceable calibration for SMART 5 or SMART 6 IR temperature sensors.

Exhaust Tubing

Exhaust tubing that can be connected to the back of the SMART 6 to remove volatile fumes to a desired location.





ORACLE™ Rapid NMR Fat Analyzer





The first ever rapid fat analyzer with no method development.

Overview

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. Alternatively, ORACLE can be paired with the SMART 6 for combined rapid fat and moisture/solids analysis in less than 5 minutes.

Awards

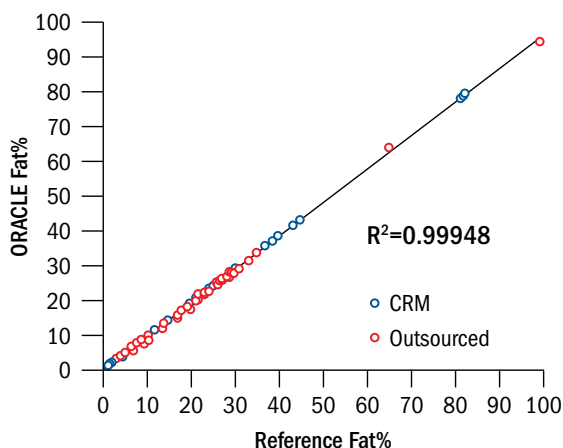
- 2017 IFT Food Expo Innovation Award
- Top 3 New Products at PITTCAN 2017

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)



Accurate Analysis of Any Food Sample in Only 30 Seconds

ORACLE was verified with over 30 Certified Reference Materials (CRM's) sourced from Europe and USA. The blue data in the graph shows the linearity between the CRM reference results and the ORACLE rapid fat results. The red data in the chart shows the comparison between the outside lab reference results and ORACLE.

No Method Development

ORACLE is the first ever rapid fat analyzer that requires absolutely no method development. 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 and composition. Simply press the run arrow, and in 30 seconds the ORACLE delivers an exceptionally accurate and precise fat result. It's really that simple.



Sample Types

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 Foods

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

Powders

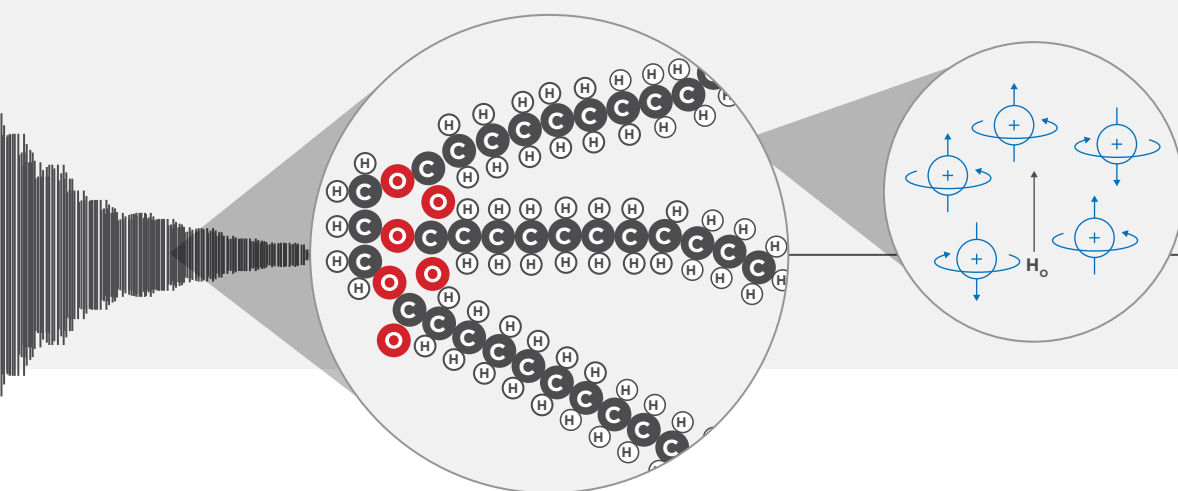
Cheese
Coffee Creamer
Dairy
Formula (Infant)
Gravy
Milk
Non-Dairy
Wheat Flour
Whey

¹ Actalia is a COFRAC accredited laboratory that specializes in providing technical and scientific input into the validation and unification of analytical methods, with expertise in dairy analysis.



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.



Consistent

All ORACLE systems are manufactured and designed to produce the same results worldwide, making the system 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 costs. Plus, there's no guarantee that the results will match. Not so with the ORACLE.

Versatile

ORACLE is designed to operate in any lab setting, from process control in food production sites (at-line and in-lab) to certified testing laboratories. For labs seeking rapid moisture/solids analysis, in addition to fat analysis, the ORACLE can be paired with the newly developed SMART 6 analyzer for moisture/solids results in about 5 minutes. Alternatively, labs who run 50 or more samples per day may choose the stand-alone ORACLE high throughput solution, where samples are dried in an oven overnight, and subsequently run through the ORACLE in batch mode.



ORACLE
Rapid NMR Fat Analyzer

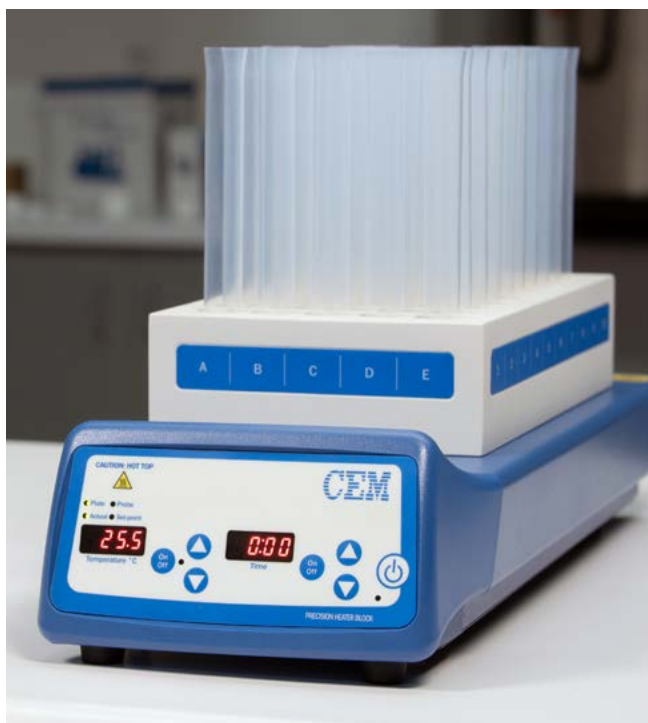


SMART 6
Microwave + Infrared
Moisture & Solids Analyzer

ORACLE Robot Automated High-Throughput Processing

Process up to 100 samples unattended. Analyze large batches on the ORACLE with the high-throughput robot accessory. The robot can be used with two high-throughput sample conditioning blocks. Data analysis is stored for each sample and can be reviewed at any time.





Precision Heater Block

High-Throughput Sample Conditioning

This accessory is effective for temperature conditioning large batches of up to 50 samples. Predry large batches in a vacuum or convection oven, and condition in a 50 place high-precision heater block. Individual samples can then be run sequentially on the ORACLE in less than 30 seconds.



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.



Sprint® Rapid Protein Analyzer





For rapid,
safe, and
direct protein
determination.

Overview

The Sprint is an advancement for protein analysis based on a rapid green chemistry process allowing for direct protein detection in less than 5 minutes. It replaces the conventional Kjeldahl method for analysis of dairy and meat products. Using the Sprint is as simple as weighing the sample, placing it in the system, and pressing “Start”.

Features

- Direct method for protein (not nitrogen conversion)
- Remarkably easy to use
- More repeatable than Kjeldahl & combustion techniques

Validation

- AOAC 2011.04
- Automates AOAC Methods 967.12, 930.33, and 930.29



Awarded the Presidential Green Chemistry award in 2009 through the US Environmental Protection Agency (EPA)

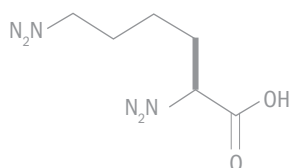


Protein Binding with iTag

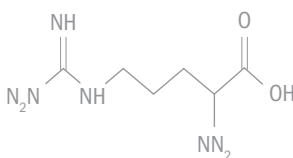
All proteins contain amino acids. The basic amino acids that are found in foods are Arginine, Histidine and Lysine. Our proprietary iTag® solution binds to protein at these three amino acid sites using an acid group.

The aromatic portion of the iTag molecule absorbs light and is easily detected with a colorimeter.

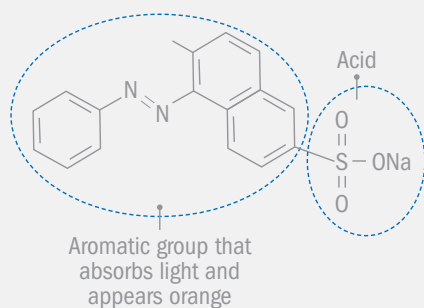
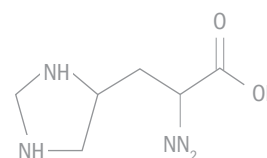
Lysine



Arginine



Histidine



Our Process, More Accurate than Kjeldahl

A pre-determined amount of iTag solution is added to a sample, then homogenized to release the proteins. The iTag molecules bind to the proteins, and are removed from solution. The remaining iTag is drawn up through a disposable filter into the built-in colorimeter. The amount of iTag bound to the protein is determined and the results displayed. The entire process takes only 2 – 3 minutes for most samples, and yields results that are more accurate than Kjeldahl or combustion techniques.

Sprint Publications

- Park, C.W.; Parker M., Drake M.A., *J. Dairy Sci.* 99, 4303-4308 **2016**
- Paiva, I.M. et al., *Rev. Inst. Laticínios Cândido Tostes*, Juiz de Fora, 70, 192-199 **2015**
- Campbell, R.E.; Boogers I.A.L.A., Drake M.A., *J. Dairy Sci.* 97, 1313-1318 **2014**
- Park, C.W.; Bastian E., Farkas, B., Drake M.A., *J. Food Sci.* 79, C19-C24 **2014**
- Desai, N.T.; Shepard L.; Drake M.A., *J. Dairy Sci.* 96, 7454-7466 **2013**
- Listiyani, M.A.D. et al., *J. Dairy Sci.* 94, 4347-4359 **2011**
- Campbell R.E.; Miracle R.E.; Drake M.A., *J. Dairy Sci.* 94, 1185-1193 **2011**
- J.K. Amamcharla, L.E. Metzger, *J. Dairy Sci.* 93, 3846-3857 **2010**
- Zhao D.; Jai V.; Farkye N.Y. *T88 J. Anim. Sci.* 88, E-Suppl. 2 **2010**.



GREEN TECHNOLOGY

No Hazardous Waste for Disposal

Sprint's non-toxic iTag solutions are environmentally friendly. Sprint generates no hazardous waste at all. So, not only do you enjoy better results, you help make your workplace safer for your team and the environment.

Sample Types

Dairy

- Cheese
- Cream
- Ice Cream
- Milk
- Sour Cream
- Whey Protein Concentrate
- Yogurt

Beverages

- Energy drinks
- Frappuccino®
- Nutritional Drinks
- Protein Drinks

Meat

- Bologna
- Chicken Broth
- Hot Dogs
- Pork Sausage
- Turkey Sausage

Other

- Egg
- Pea Protein
- Protein Alternatives
- Soy Protein

Accessories & Consumables



Sprint Paks

Kit includes necessary items for running samples on the Sprint.



Sprint Standards Kit

Includes 5 vials of standard reference material with certified protein analysis for confirming Sprint unit performance.



Anti-Static Ionizer

The Benchtop Air Ionizer helps remove static to aid in speed and accuracy when working with powdered samples or in low humidity environments.



Phoenix BLACK™ Microwave Muffle Furnace





Ash samples up to 97% faster than other muffle furnaces.

Overview

Ash samples with unmatched speed and safety with the Phoenix BLACK™. With an on-board touchscreen interface you'll save time and simplify your workflow. Two powerful magnetrons heat the cavity which allows for exceptional temperature control and lightning fast ramp times. Make rapid adjustments to reduce out-of-specification products and improve your process control.

Features

- Ash up to 15 samples at one time
- Use any type of crucible normally used in conventional ashing systems, even platinum
- Meets requirements of electrical and microwave muffle furnaces

Validation Methods

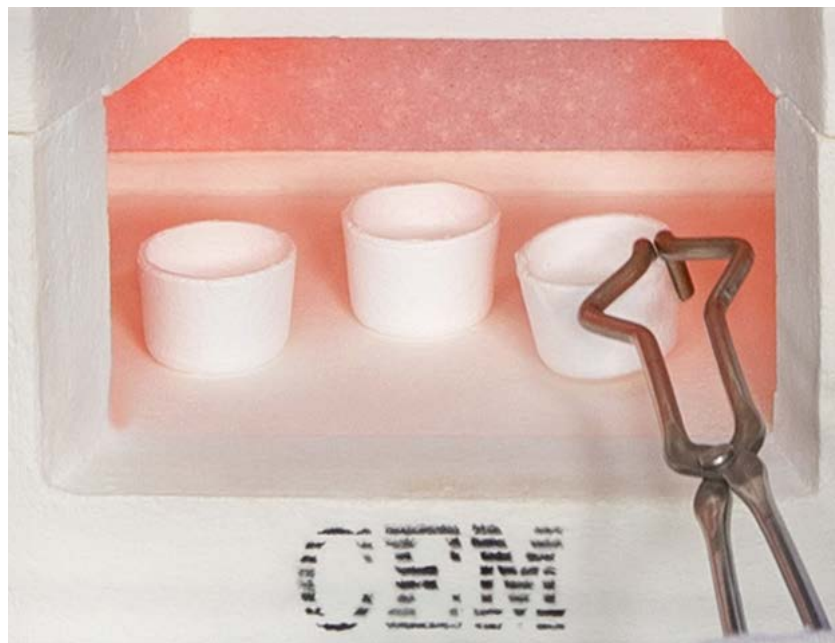
AOAC official methods 923.03 (flour), 930.30 (dried milk), 945.46 (milk), 935.42 (cheese), 920.153 (meat), 942.05 (animal feed), 938.08 (seafood)



Over 10,000 microwave muffle furnaces sold worldwide

Safety

The Phoenix BLACK provides the unique ability to put your samples into the furnace at room temperature. This protects the operator from rapid sample decomposition upon initial placement that can result in dangerous flames and heat. This is due to the ability of the Phoenix BLACK to rapidly increase the furnace temperature after the method is started.

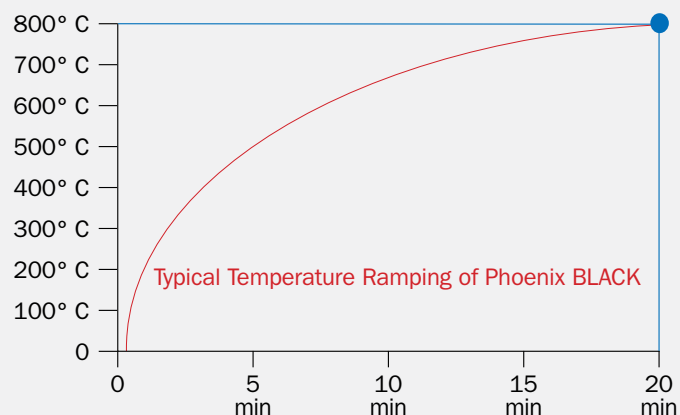


Ease-of-use

Conventional muffle furnaces are kept hot and therefore often require an initial “pre-burn” step to avoid excessive initial burning of the sample. This is typically done with the use of a Bunsen burner which requires extra effort and time. With the Phoenix BLACK, the sample can be inserted at room temperature with a rapid temperature ramping that eliminates the need for a “pre-burn” step. This significantly simplifies the workflow.

Energy Savings

Due to the unique temperature ramping capabilities of the Phoenix BLACK system, it can be left idle in a non-heated state. This results in significant energy savings, versus conventional muffle furnaces that are kept constantly in a high temperature state.



Food/Feeds Ashing Applications



Sample	Crucible	Weight (g)	Temp (°C)	Time (min)
Beef Liver	20 mL – CEM Quartz	2	950	30
Cat Food (canned)	20 mL – CEM Quartz	2-5	600-950	10-90
Dog Food (dry)	20 mL – CEM Quartz	2.5	575	30
Eggs	20 mL – CEM Quartz	5	925	20-35
Feed (poultry layer)	20 mL – CEM Quartz	2	600	10
Feed (turkey)	20 mL – CEM Quartz	2	600	20
Flour (soy)	20 mL – CEM Quartz	1	935	15
Flour (wheat)	20 mL – CEM Quartz	2	935	10
Lactose	20 mL – CEM Quartz	5	550	30-35
Meat & Bone Meal (dog)	20 mL – CEM Quartz	2.5	575	10
Milk (powdered)	20 mL – CEM Quartz	2	935	10
Noodle Mix	20 mL – CEM Quartz	3	935	15
Oil (residual)	50 mL – porcelain	50*	540	75
Oil (soybean)	25 mL – porcelain	10	600	10
Rice Germ & Bran	20 mL – CEM Quartz	2	550	20
Salts	20 mL – CEM Quartz	10	350	10
Starch (corn)	20 mL – CEM Quartz	2	575	10
Starch (pre-jelled tapioca)	20 mL – CEM Quartz	1	650	120
Sugar (granulated**)	25 mL – porcelain	10	550	240
Sugar (raw**)	25 mL – porcelain	4	550	180
Whey	20 mL – CEM Quartz	2	935	10

*AirWave Configuration / **Sulfated Ash Configuration



Sulfated Ashing

This Vapor Scrubbing System features a vapor scrubber to safely remove harmful fumes from the furnace cavity and neutralize any residual acid exhaust (sulfur dioxide and nitric acid). This setup meets ISO 14000 regulations and can be rapidly disconnected in less than 5 minutes without the use of tools.



AirWave

The AirWave provides increased airflow for high-organic sample ashing. This system configuration meets the most demanding requirements of large organic samples with ease, and eliminates volume reduction/carbonization on hot plate or Bunsen burner. The compressed air-driven exhaust system features no moving parts and will not require excessive maintenance or clog.



High-Temperature Furnace Setup

The High-Temperature Furnace holds up to 8 (25 mL) crucibles up to 1200 °C.



High-Capacity Furnace Setup

The High-Capacity Furnace holds up to 15 (25 mL) crucibles up to 1000 °C.

Accessories & Consumables



Quartz-fiber Crucibles

Our crucibles dramatically reduce ashing times and cools in seconds. The quartz fiber material allows oxygen to circulate around the sample speeding combustion. They are disposable and can withstand temperatures up to 1000 °C.



Ashing Disks

The ashing disk fits into the crucible and will extend the crucible life while making the removal of ash easier. A second ashing disk can also be placed on top of the sample for containing sample mass of highly combustible materials.



Self-sealing Crucibles

For oxygen-free ashing, self-sealing quartz crucibles are available. Ideal for applications such as carbon black determination in polymer samples.



Crucible Marking Pen

Pen with heat-proof ink that will not fade during ashing.



Who we are

At our core, we are Chemists, Engineers, and Manufacturers, all under one big roof. Together, we passionately design and develop laboratory instruments that are used by major companies, prestigious research institutes, and universities around the world. We are proud of what we do, and we hope it shows. With over 50,000 instruments sold, you've probably used a product that has been tested with a CEM instrument. That fact motivates us to push harder to create better instruments, to help solve more problems for the scientific community of tomorrow.



Founding Fathers (circa 1980)

Chemist: Dr. Michael J. Collins (Middle)
Electrical Engineer: Ron Goetchius (Left)
Mechanical Engineer: Bill Cruse Jr. (Right)

1978

CEM was founded and launched the world's first microwave drying system as the company's first product

1989

Introduced ultra-fast cooling quartz-fiber crucible technology for ashing

1985

Introduced ProFat™, a 5-minute fat analyzer for raw meat samples, without the use of chemicals

1984

Introduced a rapid microwave muffle furnace which is > 90% faster than traditional muffle furnaces



Greetings.

I feel very fortunate to be living the American Dream. CEM started 40 years ago, in a garage with two other people, and has grown into a major global scientific instrumentation company, now employing over 300 people worldwide. We have shipped more than 50,000 systems, which are being used in laboratories throughout the world. Our success is based on introducing new “disruptive” technologies, which have created significant value for the customers we serve.

We pioneered the field of microwave chemistry, which has been transformational in a number of key markets. Important applications include food testing, microwave digestion for elemental analysis, chemical synthesis for drug development, academic research, and solid phase peptide synthesis. In all cases, our systems have provided speed (hours to minutes), simplicity, and improved performance.

More recently, CEM introduced a new technology that is transforming food compositional testing. Our goal is to provide simple, rapid and direct methods that eliminate extensive calibration and can replace the classical, outdated wet chemistry techniques. Food testing, in particular, will continue to be a major focus of our new product development. CEM remains an entrepreneurial company that is nimble, flexible, innovative, and committed to serving the needs of our customers. We have a passion to be the very best at what we do. I am excited about the future and look forward to working with all of you as we continue to bring major new innovation to the food industry and the various other markets we serve.

Sincerely,

Michael J. Collins PhD
President and CEO

2001

Developed the world's first combined microwave and NMR system for rapid fat analysis

2007

Developed the world's first automated protein analyzer based on a non-toxic dye binding technique

2016

Introduced a second generation NMR technology for fat analysis that eliminated method development

1998

Introduced infrared temperature control with microwave drying

2015

Introduced dual-frequency drying technology that reduced microwave drying times up to 40%

2013

Developed a rapid temperature conditioning process for fat analysis by NMR. This reduced preparation time from 20 – 60 minutes, down to only 30 seconds



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