



SMART 6™

Microwave + Infrared Moisture & Solids Analyzer





Analyze any sample type 10x faster than with traditional drying systems.

The SMART 6 is the most technologically advanced moisture/solids/volatiles rapid analyzer available. The system features two major innovations, compared to other moisture analyzers: the ability to accurately analyze both wet and dry samples, and a significant reduction in sample drying times. These benefits are possible through the development of iPower® technology, which features a patented dual-frequency drying technique.

This unique energy source allows for analysis times now up to 10x faster than traditional IR (infrared) and halogen drying systems. Never before has a moisture analyzer been able to offer so much, with the fastest and most accurate analysis for any sample type.

Features

- Up to 10x faster than infrared and halogen systems
- Up to 40 % faster than CEM's SMART 5 Turbo
- Analyze both dry and wet products on one system
- Pre-programmed methods for all sample types
- Compact and lightweight for easy at-line placement
- Analyze polar and non-polar solvents

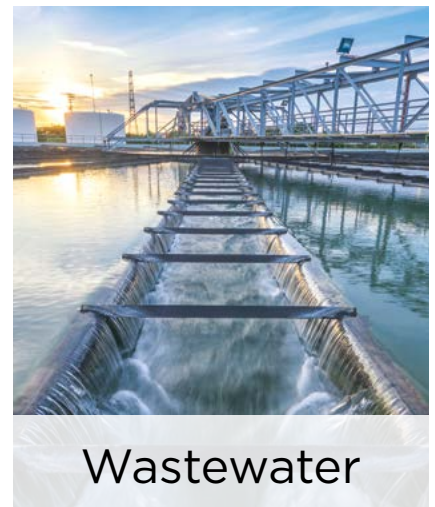
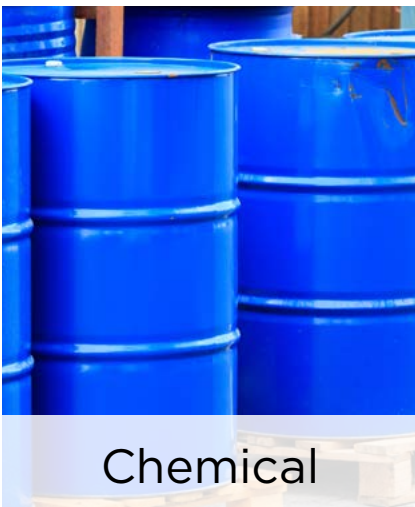
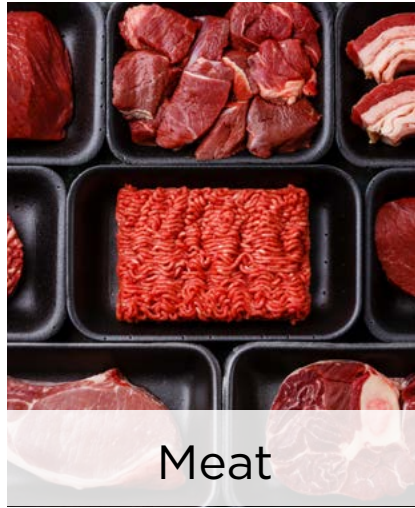
Validation

- AOAC 985.14
- AOAC 2008.06
- AOAC PVM 1.2004
- Title 21 CFR, Part 11



Over 11,000 moisture analyzers sold worldwide

Common Applications



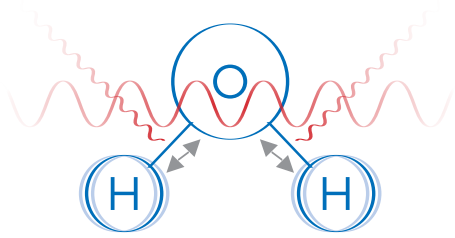
- Adhesives
- Bacon
- Black Liquor
- Butter
- Chicken
- Chips
- Cod
- Condensed Milk
- Cosmetics
- Crackers
- Cream
- Cream Cheese

- Cream Powder
- Deli Chicken
- Deli Ham
- Detergents
- Dressings
- Dry Dog Food
- Duck
- Egg Whites
- Ground Beef
- Heavy Cream
- Hot Dogs
- Ice Cream Mix

- Lamb
- Mayonnaise
- Milk
- Mixed Foods
- Natural Cheese
- Non-Fat Milk Powder
- Noodles
- Poultry Feed
- Powdered Infant Formula
- Processed Cheese
- Processed Meat
- Raw Pork

- Resin
- Salmon
- Sausage
- Sour Cream
- TiO₂
- Turkey
- Wastewater
- Wheat Flour
- Whey Powder
- Whole Milk Powder
- Yogurt
- And many more...

iPower®



Analyze wet and dry samples with unmatched speed.

iPower® is 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

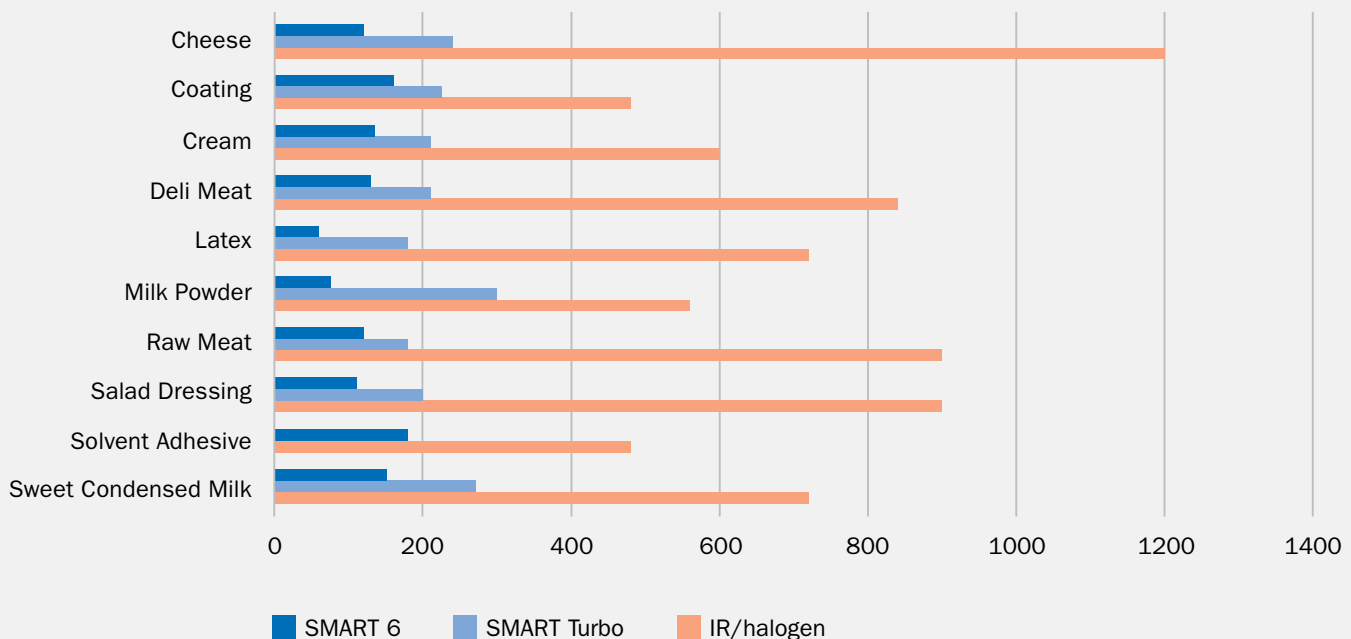
Collimated Energy



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.

Time Comparison (in seconds)



The Most Accurate for Moisture/Solids Analysis

Sample	Moisture/Solids Results					St Dev	Moisture or Solids	S6 Average	Reference	Difference
	1	2	3	4	5					
Milk	11.93	11.94	11.94	11.99	11.94	0.02	Solids	11.95	11.91	0.04
Yogurt	23.31	23.30	23.45	23.47	23.35	0.07	Solids	23.38	23.25	0.13
Sour Cream	25.31	25.21	25.37	25.25	25.36	0.06	Solids	25.30	25.22	0.08
Condensed Skim Milk	33.45	33.46	33.48	33.58	33.35	0.07	Solids	33.46	33.39	0.07
Ice Cream	40.42	40.41	40.72	40.63	40.70	0.13	Solids	40.58	40.54	0.04
Cream	45.42	45.30	45.05	45.20	45.25	0.12	Solids	45.24	45.24	0.00
Milk Powder	3.56	3.64	3.66	3.50	3.59	0.06	Moisture	3.59	3.52	0.07
Cream Cheese	54.00	53.99	53.98	53.80	53.94	0.07	Moisture	53.94	53.94	0.00
Cheese	45.45	45.23	45.31	45.22	45.27	0.08	Moisture	45.30	45.36	-0.06
Salad Dressing	49.56	49.66	49.55	49.52	49.57	0.05	Solids	49.57	49.46	0.11
Beef	56.13	56.23	55.76	56.16	56.10	0.16	Moisture	56.08	55.91	0.17
Chicken	66.94	66.55	66.77	66.84	67.12	0.19	Moisture	66.84	66.86	-0.02
Deli Meat	76.50	76.52	76.40	76.47	76.53	0.05	Moisture	76.48	76.45	0.03
Potted Meat	69.98	70.03	69.96	70.08	70.10	0.05	Moisture	70.03	70.38	-0.35
Hot dogs	52.71	52.66	53.28	52.74	52.62	0.24	Moisture	52.80	52.89	-0.09
Pork	57.48	57.54	57.37	56.95	57.11	0.22	Moisture	57.29	57.47	-0.18
Latex	56.83	56.82	56.70	56.80	56.78	0.05	Solids	56.79	56.80	-0.01
Coating	55.38	55.66	55.59	55.42	55.55	0.10	Solids	55.52	55.41	0.11
Adhesive, Solvent-based	63.39	63.60	63.40	63.46	63.44	0.08	Solids	63.46	63.17	0.29

Application Support



Pre-installed Method Library

A simple touch is all it takes. Leave method development behind with SMART 6 One Touch Technology®. Test virtually any sample with a library of ready-to-use methods at your fingertips.



Application support, when you need it.

The applications team at CEM has developed a library of method notes to guide you in programming methods. View them at cem.com/methods.

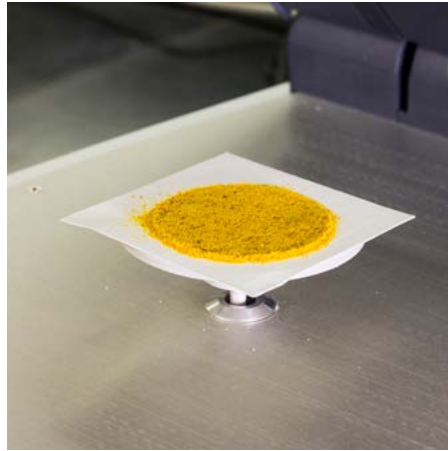
If no method note exists for your application, contact us at process.support@cem.com and we will be happy to develop one for you.

Simplicity



1

Tare Pads.



2

Add Sample.



3

Press *Start*.

Simple Work-flow



Individual User Logins

Password protected and CFR 21 Part 11 compliant.



Built-In Training Videos

Ensure your technicians run the SMART 6 correctly.



Method Import

Import from other users or CEM's method library from anywhere in the world.



Data Export

For easy data storage, transfer, and review.

System Comparison



SMART 6™



SMART Q™



SMART 5 Turbo™

Removal Species

Free + Bound Moisture
Polar + Non-Polar

Free + Bound Moisture
Polar + Non-Polar

Free Moisture
Polar Volatiles

Moisture/Solids Range

0.01 to 99.99%,
0.01% resolution
(optional 0.001%)

0.01 to 15.00%,
0.001 % resolution

0.01 to 99.99 %,
0.01 % resolution
(optional 0.001 %)

Energy Source

Quartz Halogen
Infrared + Microwave

Quartz Halogen Infrared

Microwave Energy

Data Analysis

Advanced Statistical
Processing

Advanced Statistical
Processing

Standard

Exhaust

15,600 RPM
(adjustable with
speed control)

15,600 RPM
(adjustable with
speed control)

3,100 RPM
(non-adjustable)

Footprint

- 13.0 (W) x 23.0 (D) in
(299 in²)
- 33.0 (W) x 58.5 (D) cm
(1931 cm²)

- 13.0 (W) x 23.0 (D) in
(299 in²)
- 33.0 (W) x 58.5 (D) cm
(1931 cm²)

- 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)

38 lbs (17 kg)

68 lbs (31 kg)



We Simplify Science

cem.com



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 12% of annual revenue into R&D, the result... 11 R&D 100 awards



IQ/OQ/PQ Validation by certified CEM Technicians

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