



RAPID ANALYSIS SYSTEM

Analyze Moisture/Solids,
Fat and Oils in:

Dairy Products

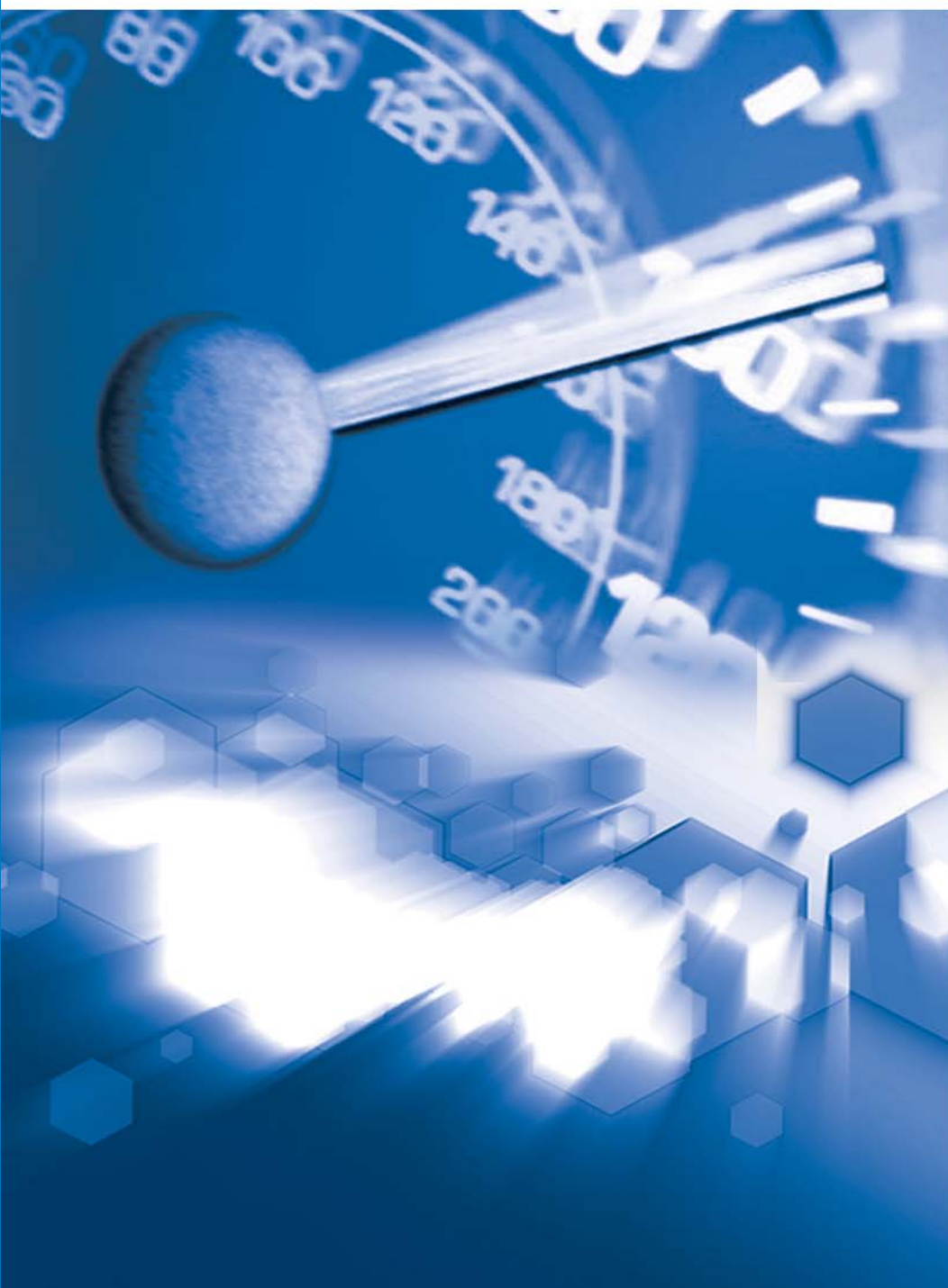
Meat Products

Snack Foods

Condiments

Soaps

and more...



ACCURATE FAT AND MOISTURE ANALYSIS HAS NEVER BEEN EASIER!

Analyze for
moisture/solids
with SMART Turbo



Roll sample and
place in Trac Tube

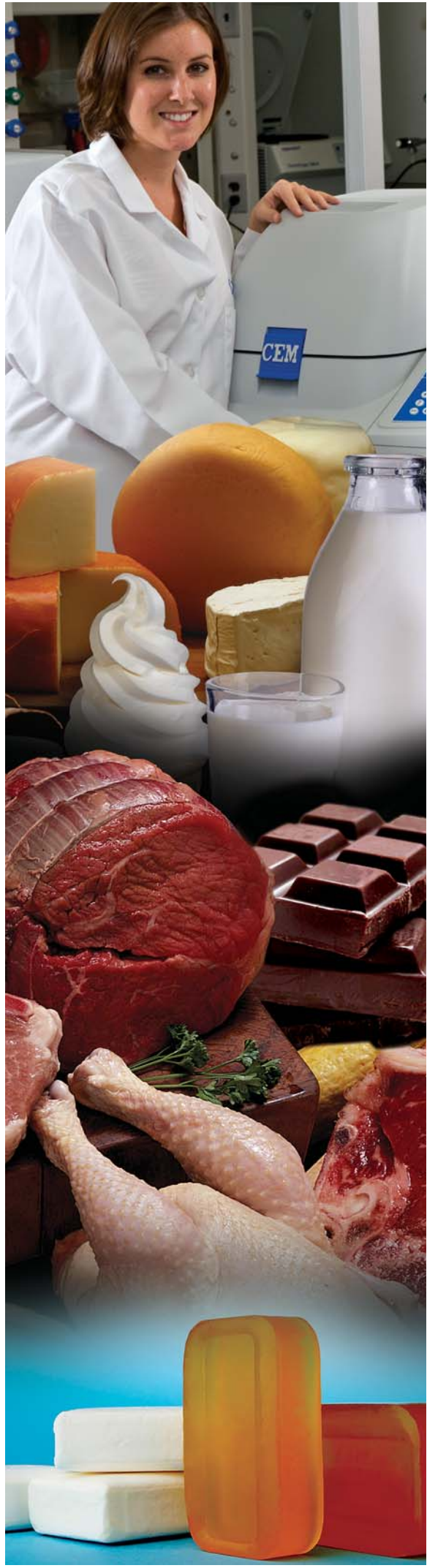


Insert into NMR
chamber for
analysis



Precise results
in 8 seconds!





FAST, ACCURATE ANALYSIS for MOISTURE/SOLIDS, FATS and OILS

A Winning Combination!



RAPID ANALYSIS SYSTEM
For Moisture/Solids, Fats and Oils



The SMART Trac II partners advanced, high performance NMR technology with the fast, reliable drying capability of the SMART Turbo Microwave Moisture/Solids Analyzer to create a system which yields fast, accurate results without solvents or calibration.

- Analyze twice as many samples per day
- Green! No solvents, 95% less energy needed
- No costly calibration maintenance
- More accurate than FTIR and NIR
- AOAC Compliant (Method 2008.06)

SMART Turbo Microwave Moisture/Solids Analyzer

The SMART Turbo provides rapid, accurate moisture/solids analysis for a broad range of products. The system's patented **IntelliTemp™** temperature control ensures that all moisture is completely removed without overheating the sample for better precision. SMART Turbo accurately analyzes a wide variety of sample types including solids, powders, slurries and liquids (0.1 - 99.9% moisture).

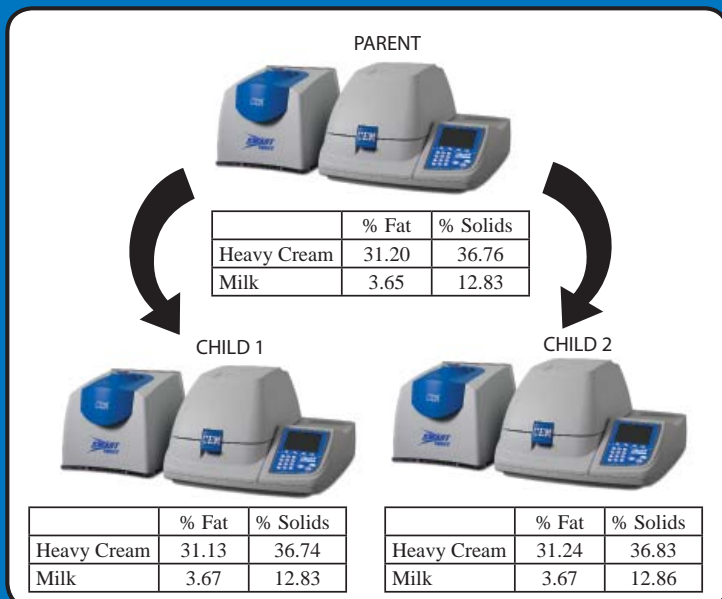
High Performance NMR Technology

NMR directly measures fats and oils. Unlike indirect methods, which only measure the surface of a sample, NMR detects fats and oils throughout the sample, yielding an accurate analysis that is independent of sample uniformity and not affected by changes in color or texture.

Easy Method Transfer

SMART Trac II has standard methods that are included with the instrument. Simply select from a list of methods and start analyzing without additional calibration. Custom methods are also available. Contact our applications support group and we can e-mail them to you directly. Combine this with the incredible stability of the SMART Trac II and you have a remarkably easy-to-use instrument that you never have to re-calibrate.

Once a method is developed on a PARENT; it can be copied to a CHILD and used immediately. You get the same results whether you are transferring methods across the lab or across the ocean.





RAPID ANALYSIS SYSTEM

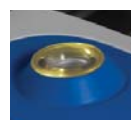
For Moisture/Solids, Fats and Oils

SYSTEM STATUS AT A GLANCE

Ready



Insert Sample



Analyzing



RAPID ANALYSIS

newly designed NMR
analyzes fat in 8 seconds

NEVER RECALIBRATE

all operators and all shifts get
the same results

COMPACT NMR

state of the art
neodymium magnet

SMALLER SIZE/LIGHTER WEIGHT

fits easily in laboratory
environments

WEIGHT STORED AUTOMATICALLY

by a built-in analytical balance
that continuously weighs the
sample during the drying process



GREEN METHOD

No solvents and SMART Trac II uses 95% less energy
than conventional methods



RAPID ANALYSIS

Turbo Technology for the fastest
moisture/solids analysis

EXCELLENT PRECISION

with proprietary Intelli-Temp™
temperature feedback system

ON-BOARD PRINTER

LIMS READY

ethernet and serial ports

TEST PRECISION TO 0.01%

STORES 100 METHODS & 300 TEST RESULTS

SIMPLE USER INTERFACE

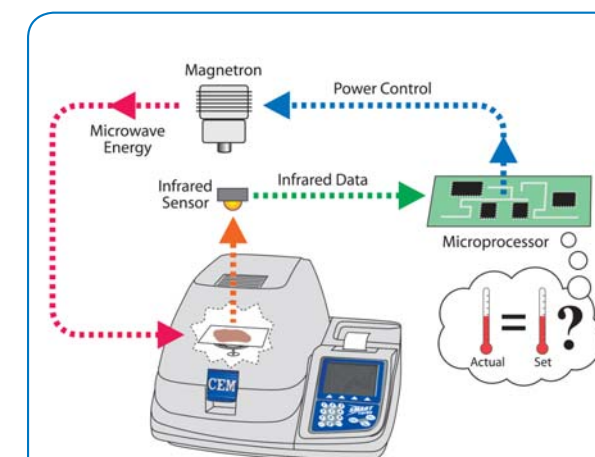
PROGRAMMING IN 5 LANGUAGES

(English, French, Spanish, Italian & German)

EASY ACCESS

to microwave chamber and balance pan

Only CEM Has The IntelliTemp™ Advantage



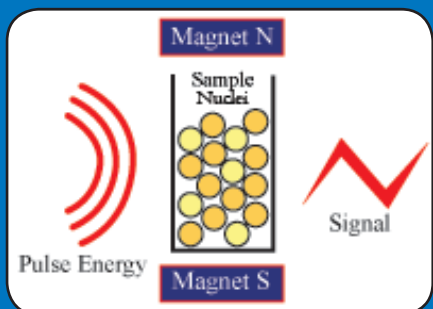
IntelliTemp continuously monitors the sample during the drying process and adjusts the microwave power, providing reproducible testing conditions by consistently maintaining the user-defined temperature setpoint. Results are always precise and reproducible, even between laboratories!

A BETTER SOLUTION

WHAT IS NMR & HOW DOES IT WORK?

NMR quantifies fats and oils in samples and eliminates the need for time consuming extractions and solvents. Nuclear Magnetic Resonance (NMR) is the same technique as Magnetic Resonance Imaging (MRI), which has been widely used in the medical profession for years to image the human body.

CEM combines microwave drying with NMR to accurately measure fats and oils. The SMART Turbo removes all of the water molecules from the sample, eliminating signal interference and allowing the NMR to accurately measure the amount of fat content in a wide variety of food products.



The word "nuclear" in the name of the technique refers to the instrument's ability to analyze the nuclei of the sample's atoms. NMR technology does not generate or use ionizing radiation.



NEW SMALLER SIZE

In most laboratories, benchtop space is at a premium, so we designed the SMART Trac II with a new, compact magnet that is smaller than any comparable instrument. The system requires no external computer and the flat panel LCD display can be used freestanding or mounted on the back of the magnet. The magnet and electronics are housed in separate units so that the electronics unit can be placed on the floor, under the bench, or even on a shelf to save bench space.



Rapid Moisture/Solids Fat Analysis

ANALYZE TWICE AS MANY SAMPLES EVERY DAY

(min:sec)		
	SMART Trac I	SMART Trac II
Milk	4:45	2:51
Cream	3:36	2:24
Cheddar	3:59	2:03
Ketchup	3:52	2:23
Hot Dog	6:00	2:21
Beef	5:02	3:30

DELIVERS THE SAME QUALITY
PERFORMANCE UP TO 10 FEET AWAY

SYSTEM SPECIFICATIONS

MOISTURE/SOLIDS RANGE	0.01% to 99.99% in liquids, solids and slurries. 0.01% resolution
BALANCE CAPACITY	50 grams, 0.1 mg readability
PROGRAM/DATA STORAGE	100 methods and 300 results
STANDARD SOFTWARE	Software with proprietary Turbo Technology and IntelliTemp™ Temperature Controlled Drying.
DATA ENTRY	Keypad with menu-driven software
DISPLAY	Black and white VGA (320 x 240) Optional flat panel LCD display
ACCESSORY PORTS	2 serial, RS 232, 9 pin ports for network connection, external balance, or bar code reader, Parallel Port for external printer, 4 USB ports, 1 Ethernet CAT 5 port
STANDARD PRINTER	Internal impact printer
NETWORK INTERFACES	RS232, USB, Ethernet
INSTRUMENT DIMENSIONS:	
SMART Turbo	22 in (w) x 23 in (d) x 15 in (h) 56 cm (w) x 59 cm (d) x 37 cm (h)
SMART Trac II Magnet	22 in (w) x 23 in (d) x 15 in (h) 56 cm (w) x 59 cm (d) x 37 cm (h)
SMART Trac II Processor	14 in (w) x 14 in (d) x 13 in (h) 36 cm (w) x 36 cm (d) x 33 cm (h) May be located up to 9'8" (3m) away from the magnet.
WEIGHT:	
SMART Turbo	55 lbs, 25 kg
SMART Trac II Magnet	110 lbs, 50 kg
SMART Trac II Processor	37 lbs, 17 kg
AMBIENT AIR TEMPERATURE	Temperature must be between 15°C and 30°C. For optimum stability and performance, the ambient temperature should not vary more than 5°C/day.
VOLTAGE	100-240 V (50-60 Hz)
POWER	800 VA maximum, UPS recommended if power is not reliable
CURRENT	Up to 40 A in rush current
RF PULSE GENERATOR:	Pulse power 300 W nominal. Pulse times variable in 100 ns increments. Transmit and receive phases selectable 0, 90, 180 and 270°. Nominal 90° pulse times 3 µs (10 mm probe) and 4.5 µs (18 mm probe)
MAGNET:	Permanent, thermally stabilized, 0.55 T (23.4 MHz proton), Homogeneity better than 10 ppm
SIGNAL DETECTION:	Dual channel (quadrature) detection with programmable low-pass filtering. Programmable data acquisition rate up to 10 MHz per pair of points.
PATENTS	6,548,303 6,548,304 7,125,721 7,220,591



Winner of the R&D 100 and the NSPE New Product Awards



ISO 9001:2000 certifies that the CEM quality management system meets internationally accepted standards.

CEM Corporation

P.O. Box 200
Matthews, NC 28106
United States

Tel: (800) 726-3331 USA & Canada

Tel: (704) 821-7015

Fax: (704) 821-7894

e-mail: info@cem.com

<http://www.cem.com>

CEM Microwave Technology Ltd.

2 Middle Slade
Buckingham Industrial Park
Buckingham MK18 1WA
United Kingdom
Tel: (44) 1280-822873
Fax: (44) 1280-822873
e-mail: info.uk@cem.com

CEM GmbH

Carl-Friedrich-Gauss -Str. 9
47475 Kamp-Lintfort
Germany
Tel: (49) 2842-9644-0
Fax: (49) 2842-9644-11
e-mail: info@cem.de
www.cem.de

CEM S.R.L.

Via Dell' Artigianato, 6/8
24055 Cologno al Serio (Bg)
Italy
Tel: (39) 35-896224
Fax: (39) 35-891661
e-mail: info.srl@cem.com

CEM µWave S.A.S.

Immeuble Ariane
Domaine Technologique de Saclay
4, rue René Razel
91892 ORSAY Cedex
France
Tel: (33-1) 69 35 57 80
e-mail: info.fr@cem.com