

Instrument Specifications

Overall Dimensions:	14.5"W x 17.2"D x 8.7"H (36.2 cm x 43.7 cm x 22.1 cm)
Weight:	30 lbs
Electrical Requirements:	90 - 264 VAC 50/60 Hz, 10 Amp @120 VAC, 5 Amps @ 220 VAC
Magnetron Frequency:	2450 MHz
Power Output:	600 Watt magnetron
Pressure:	Monitor 0 - 35 Bar, Control 0 - 20 Bar
Temperature:	-90° to 300° C control range
Stirring:	In-situ magnetic variable speed
Microwave applicator:	Circular, single-mode self-tuning
Ethernet Port:	10 based T, 10 MB/sec
Serial Port:	(2) RS-232, 9 pin IBM PC compatible
Patents:	US Patents 6648659, 6666223, 6744024, 5459302, 6607920 B2 with others pending

Discover

Microwave Proteomic Sample Preparation



www.cem.com

World Headquarters

P.O. Box 200 • Matthews, NC 28106
USA
Tel: (704) 821-7015
Toll-free [inside USA]: (800) 726-3331
e-mail: info@cem.com

Subsidiaries

United Kingdom

CEM Microwave Technology Ltd.
2 Middle Slade
Buckingham Industrial Park
Buckingham MK18 1WA
United Kingdom
Tel: 011-44 1 280 822873
e-mail: info.uk@cem.com

Germany

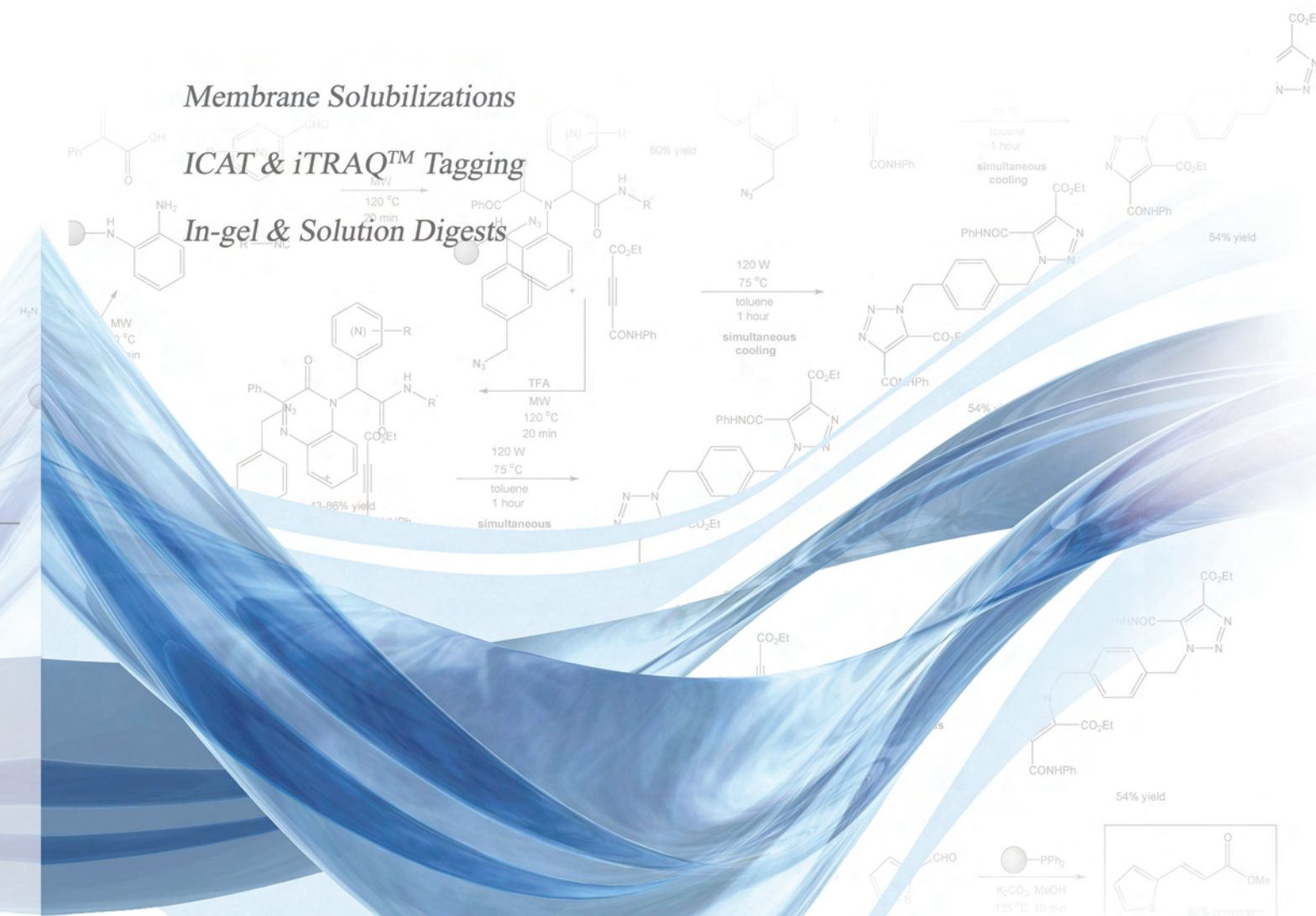
CEM GmbH
Carl-Friedrich-GauB-Str. 9
47475 Kamp-Lintfort
Germany
Tel: 011-49-2842-9644-0
e-mail: info@cem.de
web: <http://www.cem.de>

France

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
web: www.cemfrance.fr

Italy

CEM SRL
Via Dell Artigianato, 6/8
24055 COLOGNO AL SERIO (BG)
Italy
Tel: 011-390-35-896224
e-mail: info.srl@cem.com



Discover the advantages of microwave-assisted proteomic sample preparation!

Faster
Better total coverage
Cleaner - fewer tryptic fragments
Fewer missed cleavages



As pioneers in the field of microwave chemistry, we at CEM have a long history of developing high performance, innovative systems designed for the challenges of the modern laboratory. Now, CEM brings the tremendous benefits of microwave energy to proteomics.

Discover Flexibility

Membrane Protein Solubilizations

Discover dramatically increased protein recoveries

ICAT & iTRAQ™ Tagging

Discover improved tagging efficiency

In-gel & Solution Digests

Discover 5-10 minute digests with improved coverage

Discover Greater Control

- Proteomic processes which took 10 - 20 hours or more using conventional methods can now be performed in minutes with the Discover® Focused™ Microwave System!
- Patented single-mode, microwave cavity focuses the optimum amount of energy for small samples
- Continuous power input provides precise control of temperature
- Discover's patented Simultaneous Cooling feature enables the system to maximize the microwave energy introduced to the sample, while maintaining low to moderate sample temperatures.
- Flexible, open architecture allows introduction of a variety of different sample types

For more information on our microwave systems for proteomic applications or for a free demonstration call CEM today! (800) 726-3331

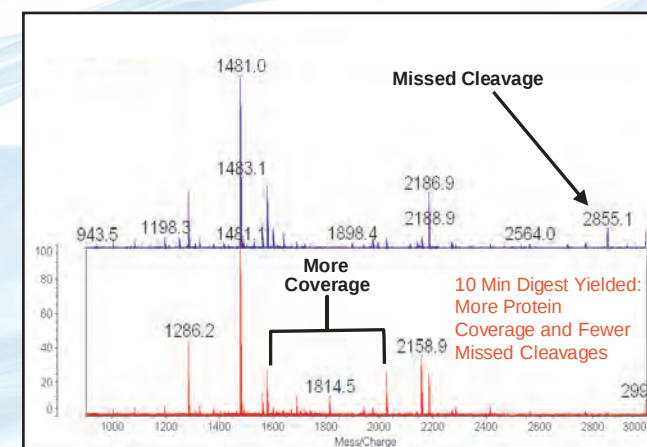
Discover Results

Enzymatic Digestions

- Decrease digestion time from 6-16 hours to 10 minutes
- Improve protein coverage
- Fewer missed cleavages
- Can improve both solution and in-gel digests

In- Gel Digests

Discover can improve in-gel digests and decrease digestion time significantly. At the 2004 Keystone Symposium, researchers presented their findings on a 10-minute microwave in-gel digest of Myoglobin (analysis with a Nanomate 100).^{*} This experiment resulted in 75% sequence coverage with Xcorr's ranging from 4.5 - 2.1 compared to 50% coverage with Xcorr's ranging from 2 - 1.5 for a conventional overnight digest.



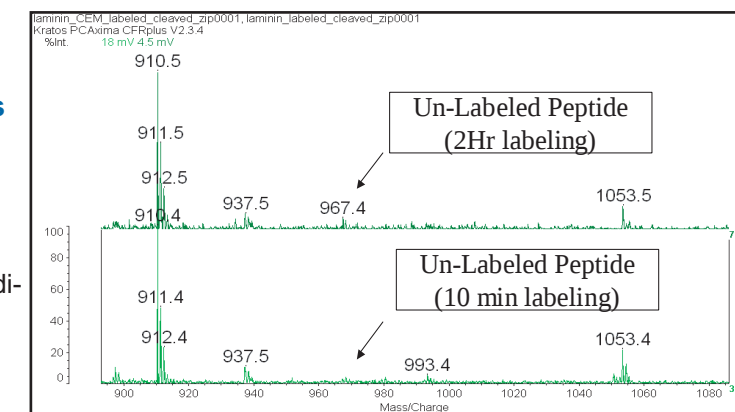
Solution Digests

The graph on the left shows a MALDI-TOF spectra of Transferrin. Traditional digest for 16 hours (top) and a 10 minute microwave digest (bottom). The microwave digest resulted in approximately 10% more sequence coverage and had 10% fewer missed cleavages.

Tagging

- Decrease tagging time from 2-10 hours to 10 minutes
- Improve tagging efficiency

Researchers from Charles River Proteomic Services found that Discover allowed them to reduce the time required for cleavable ICAT analysis from over 10 hours to 30 minutes!^{**} Labeling of individual peptides decreased from 2 hours to 10 minutes.



Membrane Protein Solubilizations

- Increase the number of different proteins extracted from samples (especially effective for membrane or mitochondrial proteins)
- Increase the amount of each protein extracted from a sample

Researchers at the Medical School of the University of South Carolina - Charleston found that the Discover enabled them to increase their protein solubilizations while saving laboratory time.^{***}

^{*}Rutherford, J.L.; Bonapace, J.; Nguyen, M.; Pekar, T.; Hinerfeld, D.; and Pirro, J. "Enhanced Protein Identifications Utilizing Protein Digestions and Off-Line Nano-Spray Chip Technology," Proceedings of Keystone Symposium, Mass Spectrometry in Systems Biology, Santa Fe, NM, February 2004.

^{**}Rutherford, J.L.; Bonapace, J.; Nguyen, M.; Pekar, T.; Innamorati, D.; and Pirro, J. "Higher-throughput Cleavable ICAT Analysis using Microwave Technology." Proceedings of the CHI Beyond Genome conference. San Francisco, CA, June 2004.

^{***}Bethard, J.R.; Bigelow, W.; Comte-Walters, S.; Schilling, M.; Baatz, J.; and Collins, Jr., M. "Microwave-Assisted Proteomics" Proceeding of the American Society for Mass Spectrometry Conference. Seattle, WA, May 2006.



CEM offers two different vial sizes and styles to fit your laboratory's needs!

