

# DISCOVER SP-D

PRESSURIZED MICROWAVE DIGESTION  
MADE SIMPLE



**CEM**

*Microwave-Enhanced Science*

## **IT DOESN'T GET ANY EASIER THAN THIS!**

Each sample vial is run under full pressure and temperature control. Different samples can be run sequentially with different reagents and methodologies and different vial sizes and types may be run in any sequence.

**1**  
**LOAD YOUR  
SAMPLE.**



**2**  
**SNAP ON  
THE CAP.**



**3**  
**CHOOSE YOUR  
METHOD.**



## **DISCOVER SP TAKES CARE OF THE REST!**

You are 10 minutes away from a completely digested and cooled sample ready to be diluted!

# REVOLUTIONARY TECHNOLOGY

Acid digestion used to be a time-consuming, laborious task. Then, 25 years ago the first microwave digestion system was introduced, revolutionizing the way chemists performed sample preparation and improving the workflow in many labs. Today, microwave digestion takes an evolutionary leap forward with the introduction of the Discover SP-D System.

Discover SP-D is a sequential, pressurized microwave digestion system that processes samples quickly and easily. Typical times for sample processing are 10 minutes or less, including cool down! Run real-world sample sizes in easy-to-use 10- or 35-mL vials with snap-on caps. No more nuts, screws or difficult fittings to assemble! CEM's new patent-pending ActiVent™ Technology makes it all possible with the most advanced pressure control of any microwave digestion system. Automated sample decks are available to make processing your samples even more effortless.

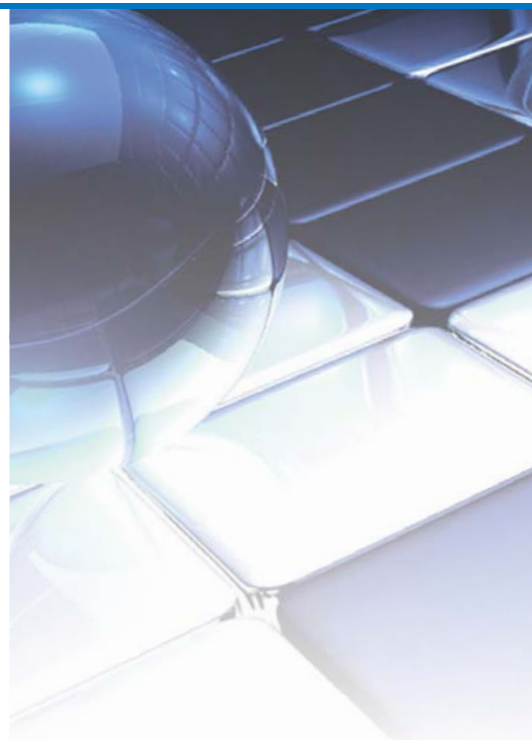
Discover SP-D is simply  
the easiest, fastest way to  
perform acid digestions.



## SIMPLICITY

For Discover SP-D, ease of use is more than a description; it's an integral part of the system. Every aspect of the instrument is designed to make the Discover SP-D effortless. It is quite simply the easiest-to-use sample preparation system available.

- Snap on caps for 10- and 35-mL vials. No screws, nuts, fittings or tools needed!
- Sequential format eliminates the need for batching samples
- Pre-programmed methods - No matter what you are digesting, we have an application for it!
- Fast! Complete and cooled digestions in 10 minutes!
- Compact design saves valuable benchspace







## TECHNOLOGY

CEM's R&D Team consists of engineers and chemists working closely together to design and develop systems that deliver superior performance and outstanding usability. The advanced technology inherent in the design of the Discover SP-D is what makes this instrument the easiest-to-operate pressurized microwave digestion system you've ever used.

- Patent-pending ActiVent™ Technology automatically controls vessel pressure
- Patented cavity design optimizes microwave energy for fast, efficient digestions
- Patented PowerMAX™ simultaneous cooling technology
- Full pressure and temperature control for each sample
- Most energy efficient microwave synthesis system available – contributes to your lab's green initiatives

## SAFETY

Safety is inherent in the design of the Discover SP-D. The Discover platform's unique, patented circular cavity completely encapsulates the vessel and is designed to focus microwave energy efficiently on the sample, drastically reducing the reaction time. Discover SP-D also features the proprietary ActiVent Technology, which effectively manages any excess pressure build-up in the vessel and safely vents it without loss of analytes.

- Pressure and temperature control of each individual sample
- Rugged, durable solid-steel cavity design

## Automated Sample Handling Option

Available as single-place system or with 48-, 72- and 96-position decks

## PowerMAX™ Airflow

Maximized microwave power - 10 minute digestions  
Faster cooling than any other microwave digestion system

## ActiVent™ Technology\*

Automated, controlled venting of excess pressure

## Large Sample Size

Up to 0.5g of organic material

## Individual Programming for Each Sample

Flexibility to mix and match any sample types

## Pre-programmed Methods

Let the experts at CEM develop your methods!

## Intelligent Rack Design

Automatically recognizes vessel size  
Run 10-mL or 35-mL vials or a combination of both!

## Efficient Circular Cavity

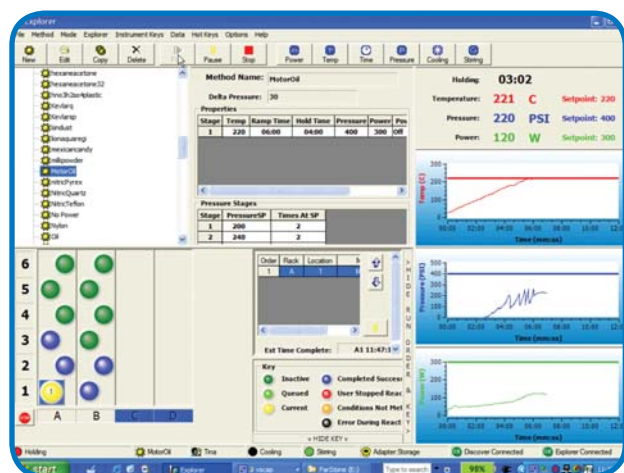
Optimizes microwave energy

## Energy Efficient

## Compact

Smaller than box-type microwave digestion systems and saves benchspace!

## Wireless capability & USB interfaces for easy data transfer



## Easy-to-use Software

Documented Run Data



\*Worldwide patents-pending

## AVAILABLE VESSELS

- 10-mL and 35-mL Quartz
- 10-mL and 35-mL Pyrex®
- 10-mL and 35-mL Teflon® liner for use with quartz or pyrex vessels

For digestions with 1 or 2 mL of reagent and sample sizes up to 100 mg, we recommend the 10-mL vessels.

For digestions with up to 15 mL of reagent and sample sizes up to 0.5 g of organic, we recommend the 35-mL vessels.



# EASY-TO-USE VESSELS

SNAP-ON CAPS\*



The Discover SP-D System quickly and safely digests a wide variety of sample types. For a more complete list of applications, please visit us online at [www.cem.com/analytical\\_appnotes.html](http://www.cem.com/analytical_appnotes.html).

Food, Plant and Animal Tissue:	Oils and Plastics	Environmental	Inorganic
Dried Plant Material	Used motor oil	EPA 3051	Aluminum Oxide
Dried Animal Tissue	Olive oil	Sludge leach	Fertilizer
Wet Animal Tissue	Nylon	Sediment leach	
Milk Powder	PET	Paint Chips for Lead	
Infant Formula	Petroleum Wax		
Cheese	Kevlar		
Bone	PVC		
Peanut Butter	PPS		
Vegetable oil	Tire Rubber		
	Petrolatum		



## DISCOVER E-Zee

The Discover E-Zee is an affordable, entry-level system that is ideal for labs that would like the advantages of using microwave energy for their acid digests, but do not need the throughput or upgradeability of a full-featured Discover SP-D System. The Discover E-Zee System digests one sample at a time using conventional microwave vessel technology.



## Automated Microwave Digestion Systems

Whether you run 10 samples a week or 100 samples a day, CEM has a Discover SP-D System to fit your workflow.



### Discover SP-D with Explorer 24/48

Run 48 (10-mL) vessels or  
24 (35-mL) vessels



### Discover SP-D with EXPLORER 36/72

Run 72 (10-mL) vessels  
or 36 (35-mL) vessels



### Discover SP-D with EXPLORER 48/96

Run 96 (10-mL) vessels or  
48 (35-mL) vessels





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## INSTRUMENT SPECIFICATIONS

<b>POWER OUTPUT</b>	300 Watt magnetron
<b>PRESSURE</b>	Monitor 0 -35 Bar, Control 0 - 27 Bar ActiVent Self-Venting Technology included for pressure relief during or after reaction
<b>TEMPERATURE</b>	-80 to 300 °C control range
<b>AIR COOLING</b>	$\geq$ 25 psi (20 L/min flow) user-supplied For simultaneous cooling (PowerMAX) and rapid cooldown
<b>AUTOMATION</b>	48-position [up to 48 (10-mL) vials or 24 (35-mL) vials] 72-position [up to 72 (10-mL) vials or 36 (35-mL) vials] 96-position [up to 96 (10-mL) vials or 48 (35-mL) vials]
<b>STIRRING</b>	Electromagnetic variable speed
<b>OVERALL DIMENSIONS &amp; WEIGHT</b>	Discover SP-D System with ActiVent Technology
<b>WEIGHT</b>	38 lbs (17.3 kg)
<b>DIMENSIONS</b>	14.2"W x 16.9"D x 11.2"H (36.1 cm x 42.9 cm x 28.4 cm)

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