

DISCOVER SP-X

Microwave Sample Preparation System
for Organic Analysis

Fast, Accurate Results
Up to 95% Reduction in Solvent Usage



Plastics & Polymers
Foods and Feeds
Pharmaceuticals
Natural Products
Textiles

CEM

It Doesn't Get Any Easier Than This!

1 WEIGH YOUR SAMPLE AND ADD SOLVENT.



2 SNAP ON THE CAP.



3 CHOOSE YOUR METHOD.



In 10 minutes, your sample
is ready to be processed.

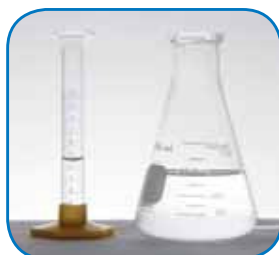


The SP-X Advantage

CEM's new Discover SP-X is a sequential, automated microwave solvent extraction system that performs solid-liquid extractions on a wide variety of matrices. Microwave energy is used to quickly elevate the temperature and pressure inside the vessel, allowing the extraction to proceed faster than other techniques and reducing solvent usage by up to 95%. Stirring is used to increase surface area and ensure a more efficient extraction process every time.

Extractions that take hours can be done in minutes with significant solvent savings...

| Technique | Average Extraction Time | Typical Solvent Amount |
|----------------------|-------------------------|------------------------|
| Sohxlet | 4 - 48 hrs | 150 - 500 mL |
| Sonication | 30 mins | 150 - 25 mL |
| SFE | 1 hr | 5 - 50 mL |
| ASE | 20 - 30 mins | Up to 200 mL |
| Discover SP-X | 10 - 20 mins | 5 - 25 mL |



Solvent Reduction

The Discover SP-X uses 95% less solvent than conventional methods, making it good for the environment and great for your budget.



Easy Operation

With CEM's patented snap-on cap technology, a technician weighs a sample into the vessel, adds the appropriate solvent(s), snaps on a cap and places it into the Discover SP-X. Programming is intuitive and the software is simple to navigate. The system requires no clamps or torque wrenches to operate.



Faster Results

Using Focused Microwave technology and enhanced cooling, extractions are complete in minutes, not hours. It is the perfect solution for laboratories that receive "rush" samples for analysis.



Load it and Leave It

Add an automation deck and your SP-X system will run unattended, even overnight. This permits technicians to work on other tasks while the SP-X continues to prepare samples. Imagine the productivity this provides for your laboratory.



SP-X Applications

The Discover SP-X is a versatile system that can be used for a variety of extractions, hydrolysis, or derivitizations.

Food & Feed Analysis

- Total Fat/Oil Analysis
- FAME Determinations
- Pesticide Residues
- Hydroxyproline Analysis

Pharmaceutical Analysis

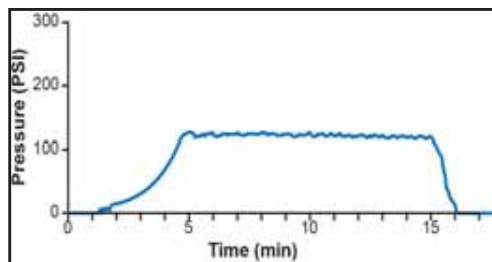
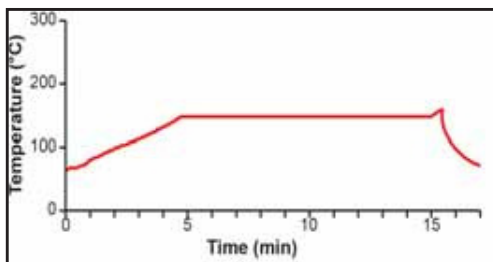
- Extractables & Leachables in Packaging
- Extraction of Active Ingredients

Polymers/ Petrochemical Analysis

- Extractions of additives such as antioxidants, elastomers, stabilizers, slip and anti-static agents, etc.
- Plasticizers from PVR
- Extraction of oils from SBR

Extraction of Additives from HDPE

| | |
|----------------|---------------|
| Method Program | HDPE |
| Sample | 0.15 g HDPE |
| Reagent | 5 mL Methanol |
| Temperature | 150 °C |
| Ramp Time | 5 min |
| Hold Time | 10 min |



| Compound | Soxhlet Extraction | | Microwave Extraction | |
|-------------------|--------------------|------|----------------------|------|
| | Amount | RSD | Amount | RSD |
| UV Stabilizer | 0.23% | 8.5% | 0.23% | 1.5% |
| Antioxidant | 0.83% | 3.6% | 0.87% | 0.6% |
| Thermal processor | 0.20% | 6.2% | 0.18% | 4.5% |

Analysis by GC/FID

What type of extraction would you like to do?

Plastics & Polymers
Foods and Feeds
Pharmaceuticals
Natural Products
Textiles



The Discover SP-X is the fast and easy alternative to Soxhlet, sonication, and other extraction techniques.



Discover SP-X

Microwave Solvent Extraction System

- Extraction in minutes, not hours
- 95% reduction in solvent usage
- Full temperature control of every sample
- Stirring provides uniformity of sample mixture
- Documentation of every sample
- Works with all solvents – polar and non-polar
- Accommodates wide range of sample sizes
- Compact
- Optional automation deck – load it and leave it!



CEM has been an ISO-certified facility since 1994.

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
www.cem.com

UNITED KINGDOM

CEM Microwave Technology Ltd.

2 Middle Slade
Buckingham Industrial Estate
Buckingham MK18 1WA
Tel: (44) 1280-822873
Fax: (44) 1280-822873
www.cemmicrowave.co.uk

GERMANY, AUSTRIA & SWITZERLAND

CEM GmbH

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

ITALY

CEM S.R.L.

Via Dell' Artigianato, 6/8
24055 Cologno al Serio (Bg)
Tel: (39) 35-896224
Fax: (39) 35-891661
www.cemmicroonde.it

FRANCE

CEM μ Wave S.A.S.

Immeuble Ariane
Domaine Technologique de Saclay
4, rue René Razel
91892 ORSAY Cedex
Tel: (33-1) 69 35 57 80
www.cemfrance.fr

JAPAN

CEM Japan K.K.

CEM Japan K.K.
2-18-10 Takanawa
Minato-ku, Tokyo
108-0074
Tel: +81-3-5793-8542
Fax: +81-3-5793-8543
Email: info@cemjapan.jp
www.cemjapan.co.jp

IRELAND

CEM Technology (Ireland) Ltd

Sky Business Centre
9a Plato Business Park
Damastown
Dublin 15
Tel +353 (0)1 885 1752
Fax +353 (0)1 885 1601
www.cemmicrowave.co.uk