

Superior Instrumentation Engineering

Though the STAR System is versatile and easy-to-use, it is designed to be rugged, safe and dependable as well. The system has a small footprint and does not require fume hood space, making it suitable for virtually any laboratory.

- **Easily add capacity: simply attach additional 2 place microwave reactors to a maximum of 6 cells.**
- **"Vessel-in-position" sensor prevents cell activation until a vessel is properly placed in the cell**
- **A built-in vapor containment system scrubs the vapors produced during the digestion eliminating the need for fume hood space**
- **1 pump per reagent per cell – parts that contact with acids are made of inert materials**
- **System software tracks reagent supply to prevent depletion during digestion**
- **Corrosion-resistant outer body**
- **Small footprint fits into virtually any laboratory**
- **ISO 9001:2000 accountability**



CEM
STAR
System

System Specifications (each 2 place reactor)

| STAR System | |
|--|---|
| Dimensions (WxDxH), Main Microwave Unit | 18 x 13.15 x 14 in 45.72 x 33.4 x 35.5 cm |
| Dimensions (WxDxH), Vapor Containment/ Reagent Addition Module | 6.5 x 9 x 12 in 16.54 x 22.86 x 30.48 cm |
| Weight (microwave unit only) | 48 lbs (21.77 kg) |
| Power Requirements (separate line recommended) | 120 ± 10% VAC, 60V Hz 220/240 ± 10% VAC, 50 Hz |
| Program Storage | 20 methods |
| Operating Temperature | Ambient - 500 °C |
| Readout Temperature | Ambient - 430 °C |
| Temperature Control | Individual sample feedback per cavity |
| Sensors, Temperature | 2 |
| Sensors, Vessel-in-Position | 2 |
| Sensors, Arm-in-Position | 2 |
| Vessel Capacity | 250, 100, 50mL |
| Number of Vessels Per Unit | Maximum 2 |
| Number of Simultaneously Run Programs | Maximum 2 |
| Number of Staggered Start Times | Maximum 2 |
| Vapor Containment Module | Standard |
| Automatic Reagent Addition * | Maximum of four reagents per pump module Maximum of five pump modules per instrument |
| Automatic Vacuum Pump Switch | Optional |
| Keypad Type | Membrane |
| Printer Port | Parallel |
| Communication Port | RS 232 |

* Optional

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Rapid Open Vessel Sample Preparation

Simplify Problem Digestions!

Plastics
Oils
Polymers
Foods
Filters (i.e. Toray)
Sulfuric Acid Reduction
Plant/Animal Tissue



Expand Your Laboratory Capabilities with the STAR System!

CEM

*Innovators in
Microwave Technology*

STAR System

*Rapid Open Vessel
Sample Preparation*

- **Process up to 6 samples independently using different methods at simultaneous or sequential start times**
- **Eliminate handling of hazardous chemicals with automated reagent addition**
- **Automated evaporation of sample and reagent to dryness**
- **Pre-programmable "Time-to-temperature" parameters for rapid optimization of methods**
- **Clean Chemistry! 1 pump per reagent for each individual cell**
- **Digest sample sizes up to 10 grams**
- **Easily digest difficult or highly reactive samples**
- **Meets requirements of USEPA SW-846 Method 3050B**
- **Self-contained vapor scrubber system frees fume hood space**

Easy-to-Use

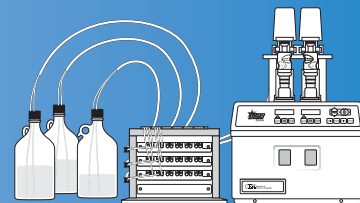
The STAR System™ is designed for convenience and flexibility, freeing the analyst from the time-consuming tasks involved in sample preparation.

The STAR System automatically adds reagent to the vessels according to the requirements of the programmed method. The reagent is added in aliquots while the digestion is running to prevent cooling the digestate. The system's proprietary pump technology ensures that an accurate measurement of reagent is delivered instantaneously on demand. Each reagent has a dedicated pump for every cell eliminating any mixing or cross contamination of reagents.

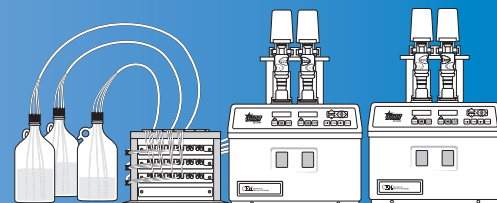
The system also allows evaporation to dryness of a sample followed by redissolution, enabling the analytical matrix to be accurately controlled.



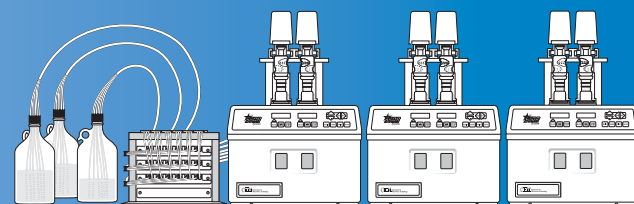
Tailor Your System to Your Sample



Low Volume and/or Similar Samples

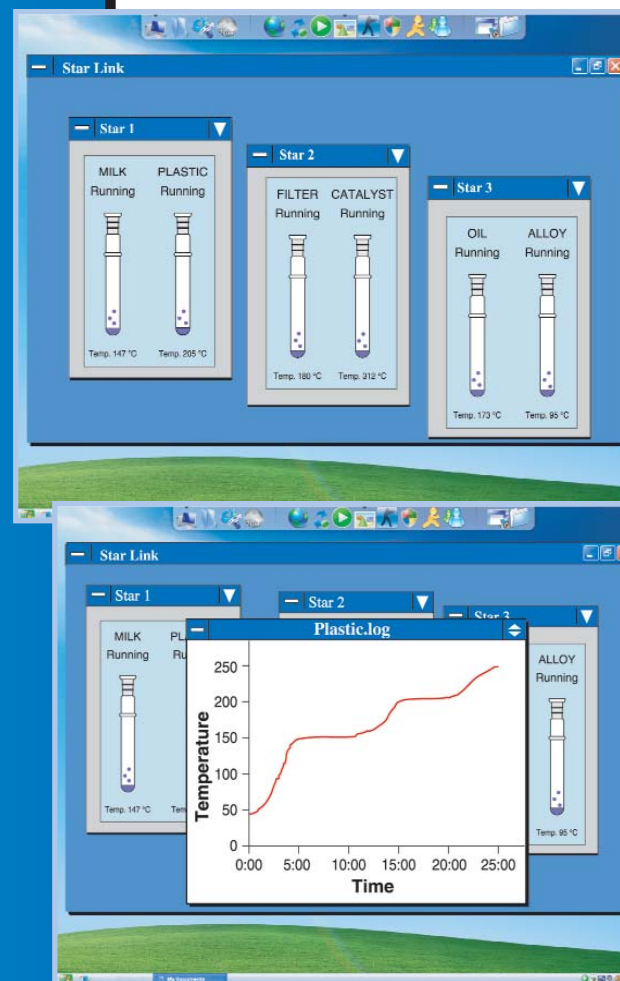


Moderate Volume and/or Mixed Samples



High Volume and/or Highly Diverse Samples

CEM's innovative STAR System takes open vessel microwave digestion to a new level, offering a flexibility and ease-of-use seldom seen in a laboratory. Build your system to meet the specific sample process needs of your laboratory. Start with a 2 place system and add additional 2 place systems as your needs dictate. The STAR System is the only system that offers a unique patented temperature feedback control, the flexibility to process up to 6 samples utilizing different programmable methods, and the safety and convenience of automated reagent addition.



Turn Your PC Into a Sample Prep Workstation

Control as many as 3 STAR Systems from your PC with CEM's STARLink™ Software. This optional software package connects your STAR Systems directly to any PC (configured with MicroSoft® Windows® 95 or higher) for method storage, data collection, and graphic display of time and temperature plots of digestions.

- **Create, store and recall methods, data plots and detailed sample information**
- **Supports bar code readers, foreign language keyboards and Internet connections**
- **Plot and print projected time and temperature of digestions**
- **Transport data to popular spreadsheet programs**
- **Allows easier and faster programming of methods**
- **Stages can be inserted or deleted from methods easily**
- **Software has a security administrator reducing user access to stored methods**
- **Automatic report generation**

Accessories

250-mL Pyrex Vessels - Standard vessels used for routine applications

250-mL Quartz Vessels - Designed for high temperature applications and acid concentration

250-mL Teflon Vessel - Used for HF and phosphoric acid digestions

Volumetric Pyrex Vessels - Eliminate transfer steps by digesting and bringing sample to volume in a single vessel. Available in 50 and 100-mL capacities.



Reagent Pumps – Pump 30-mL of reagent per minute! All parts of the pumps which come into contact with reagents are composed of inert materials. Additional reagent pumps can be linked to expand the number of reagents that can be added by the automated reagent addition system or to separate acid from the system and other reagents.



Reagent Evaporation/Reduction Condenser - For rapid reduction of reagents (i.e. sulfuric acid volume).