CEM

MARS 6™

Microwave Digestion System

How It Works

Microwave digestion has been used to prepare samples for trace metal analysis since 1986. It utilizes a combination of microwave energy and sealed vessels to rapidly elevate the temperature of the acid mixture to aid in dissolution of the metals into solution. These elevated temperatures increase the oxidation potential and the solubility of the acid mixture which in turn speeds the decomposition of the sample. Many samples that cannot be digested at atmospheric pressures can easily be digested in a closed vessel microwave digestion system, largely due to the temperatures that are able to be achieved in a safe and rapid manner. The MARS 6 Microwave Sample Preparation System reduces the sample prep time by more than 70% as compared to traditional techniques.

For Acid Digestion

The MARS 6 is used to prepare a wide variety of samples for analysis by ICP-OES, ICP-MS, or AA analysis. Raw materials for battery production, foods, feeds, soils, plants, pharmaceuticals, plastics, ceramics, alloys, and more are digested using pre-loaded or customer defined methods. Since CEM's introduction of the first microwave digestion systems, laboratory technicians from around the world have used CEM instruments to simplify the sample preparation process in their laboratories.

Features

Construction

Steel Cavity
A solid steel cavity construction, using industry leading 316 stainless steel for durability.

Acid Resistant Casing
A high impact, acid resistant polymer shell that is corrosion proof.

Spring Mounted Door
A heavy duty spring mounted door that automatically and safely relieves pressure resulting from a vessel event.

Technology

Vessel Recognition
MARS 6 counts the vessels prior to starting in order to calculate the precise heating conditions required.

iWave®
Highly accurate in-situ, contactless temperature device that measures the internal temperature of every sample.

Remote Software
iLink software package allows you to monitor and control your MARS 6 from your mobile device.

Easy-to-Use

Training Videos
On-demand training videos are available for viewing on the MARS 6 display.

One Touch Methods
System has over 100 pre-installed methods to virtually eliminate method development.

Large Interface Touchscreen
7-inch glass capacitance, high definition display provides onboard control (no need for external controller or computer).

Safety

Auto Shut-off
The PowerMax™ Monitor will shut down the system if full power is applied for extended time to prevent runaway reactions.

ReactiGuard™
The ReactiGuard cavity-sensing device automatically turns off the system if a vessel event occurs.

NRTL/CSA/CE Certified
System is certified to meet the electrical requirements as specified by NRTL, CSA and CE.

ONE TOUCH TECHNOLOGY

Preinstalled Methods Are One Touch Away

By selecting the One Touch™ icon on the MARS 6 touchscreen, you'll be able to choose the sample type from the preinstalled methods. Your method includes the recipe for digestion, including: sample size, acid type, and acid volume. In addition the MARS 6 will automatically detect the type of vessel you are using, count the vessels, adjust the power accordingly, and perform the digestion for you. It couldn't be easier.

Simple Work-flow

1 Load Your Samples

2 Select Your Method

3 Press *Start*

iWave

Light Emitting Technology™ (LET)

Better Control Means Better Results

iWave® is a contactless, in-situ temperature technology that measures the sample temperature of each vessel in real-time. There is no need for a control vessel, fiber optic probes, or wires. This innovation utilizes Light Emitting Technology (LET) that determines the temperature of the actual sample, rather than the vessel.

CEM Temperature Technology Sets the Industry Standard

Fiber Optic

Standard IR

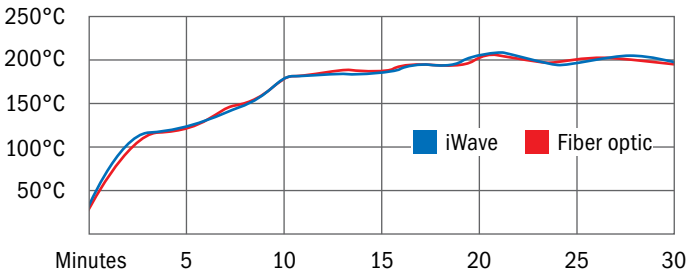
iWave

Meets Requirements of USEPA Methodology

The MARS 6 temperature sensors are designed to meet USEPA temperature requirements by sensing the temperature to within ± 2.5 °C and automatically adjust the microwave field output power within 2 seconds of sensing. Temperature sensors are accurate to ± 2 °C.

iWave is as Accurate as Internal Temperature Probes

The data is in: When compared to the industry standard of fiber optic temperature control, iWave is just as accurate. With iWave technology, you get the exact temperature of every sample with precision and simplicity.



Traditional temperature and pressure control options are still available.

All MARS 6 units are capable of fiber optic, IR, and internal pressure control. Consult your CEM representative to determine which control option meets your requirements.

iPrep

The most advanced engineered digestion vessel

Dual seal technology that is the core of the iPrep vessel's design provides the greatest temperatures and pressure range, enabling digestion of extremely difficult organic samples such as PET and Bunker oil. The vessel design also allows for larger sample sizes for many organic materials.

MARSXpress™

The most popular vessel in the world

The patented three piece vessel assembles in seconds yet is rugged enough to run batches of mixed foods and other samples in a single carousel. The MARSXpress vent and re-seal technology pressure control eliminates the risk of over pressurization. The MARSXPress™ Plus is a lager volume vessel to accommodate larger sample sizes.

EasyPrep™ Plus

The best vessel for difficult inorganic matrices

The design of this high pressure and temperature vessel make it the ideal choice for inorganic matrices that require larger amounts of HCl or HF to complete a digestion. EasyPrep™ vessels have fewer pieces to assemble and do not require springs, membranes or o-rings to maintain a proper seal.

	MARSXpress	MARSXpress Plus & EasyPrep	EasyPrep Plus	iPrep
Temp Control	IR/iWave	IR/iWave	Fiber Optic/iWave	iWave
Max Vessels	40	24	12	16
Volume (mL)	20, 55, 75	110	100	110
Typical Applications	EPA Methods, Environmental, Food, Pet Food, Feeds, Fertilizers, Filters, Pharmaceutical, Nutraceutical, Vitamins, Tissue, Paint Chips, Clinical, Fertilizers, Some Polymers, Edible Oils, Cannabis, Hemp		All MARSXpress Samples and Geological, Ceramics, Catalysts, Precious Metals, Catalysts, RoHS Materials, Coal, Slags, Oils, Polymers, Battery Materials	All EasyPrep Plus samples and Bunker Oil, PET, Flame Retardants, Larger Sample Sizes

iLink®

With the iLink app, you can monitor your MARS 6 and get results on your mobile device. You'll be free to move about the lab, and free to focus on other tasks.

AutoCal 2.0™

Simple and fast NIST traceable calibration source for iWave and IR sensors. Calibrate sensors at temperatures up to 175 °C and validate up to 200 °C.

MARSXpress Capping Station

Provides for rapid and automated capping and uncapping of MARSXpress vessels.

Anti-Static Ionizer

The Benchtop Air Ionizer helps removes static to aid in speed and accuracy when working with powdered samples or in low humidity environments.

We Simplify Science

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