



**MILESTONE**  
H E L P I N G  
C H E M I S T S



THE SIMPLE PATH TO  
**HIGH QUALITY**  
IN METALS ANALYSIS



**ETHOS EASY**  
Advanced  
Microwave Digestion System



SUPERIOR EASE OF USE  
AND CONTROL



GREAT PERFORMANCE  
AND THROUGHPUT



EXPERTISE  
AND KNOW-HOW



REMARKABLE SAFETY  
AND RELIABILITY



FLEXIBILITY

# THE FIRST STEP TO CONFIDENT RESULTS

It is a common misconception that all laboratory microwave systems are alike; at Milestone we know this is not true. Sample preparation is one of the most impactful steps in trace metals determination. The quality of analytical data obtained by ICP/ICP-MS is directly reliant on digestion quality. Today, microwave technology in sample preparation has been established in a variety of industries: Environmental, Food, Pharmaceutical, Agriculture, Consumer Product Testing, Specialty Chemicals, Geological, Mining, and many others. Milestone's sample preparation solutions maximize the AA/ ICP/ ICP-MS/ performance, and a lab's overall analytical capability.

## | FOCUS ON WHAT MATTERS: YOUR APPLICATION

Choosing the right system and configuration is a key step in maximizing investment and expanding your lab's capabilities. Some of the most crucial parameters that should be considered when choosing a microwave digestion system are:

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SAMPLE TYPE

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LAB THROUGHPUT

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SIMPLICITY AND EASE OF USE

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RELIABILITY

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FLEXIBILITY

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## | SAFETY AND RELIABILITY IN SAMPLE PREPARATION

The ETHOS EASY fully embodies Milestone's philosophy and knowledge of, microwave sample preparation. Specifically designed for closed vessel acid digestion, it offers a perfect integration of microwave hardware, user interface, reaction sensor technology and pressure resistant vessels. The ETHOS EASY is the most powerful system in the market, with two magnetrons and a total power of 1900 Watts. Microwave homogeneity is assured through a dedicated microwave diffuser. Safety and reliability are Milestone's priorities. Both factors are ever present in the foundation of the ETHOS EASY's design. The cavity has a volume in excess of 70L, and is constructed entirely of stainless steel to ensure longevity and structural integrity. Our unique pressure responsive door, also made of stainless steel, ensure high safety even with the most reactive samples.



The ETHOS EASY comes with a dedicated touch screen terminal with easyCONTROL software which incorporates our expertise and knowledge in microwave sample preparation. The ETHOS EASY controller is user-friendly, icon-driven and multi-language. To find the method which best suits your application simply select one of the

## SMART SOFTWARE TO SAVE YOUR TIME

hundreds preloaded methods or create a new one yourself using our intuitive software. Once you press 'START' the system will automatically follow the user defined temperature profile using a sophisticated PID algorithm. The preloaded applications, including all US EPA methods, virtually eliminate any need for method development. Each preloaded method includes a temperature profile, sample size and choice of reagents. To further simplify the workflow in the lab the ETHOS EASY is equipped with a backlight logo that indicates the digestion progress, showing to the operator the actual status of the process, such as heating, cooling, sample ready and error messages.

# EASE OF USE WITH UPARALLELED DIGESTION CONTROL

In a digestion process the temperature controls the sample decomposition and directly affects digestion quality. Milestone pioneered the use of infrared sensors combined with an in-situ temperature sensor to more accurately control the digestion process. Today, Milestone innovates again by combining all the benefits of in-situ and infrared sensors into a single solution: **the Milestone easyTEMP, a direct contactless temperature sensor.**

	MILESTONE easyTEMP	IN-SITU APPROACH	INFRARED APPROACH
EASE OF USE	●		●
DIRECT CONTROL	●	●	
PRECISION AND ACCURACY	●	●	
CONTROL IN ALL VESSELS	●		●
HIGH SAFETY	●		●
RUN ANY NUMBER OF VESSELS	●	●	

The easyTEMP contactless sensor directly controls the temperature of all samples and solutions, providing accurate temperature feedback to ensure complete digestion in all vessels and high safety. This technology combines the fast and accurate reading of an in-situ temperature sensor with the flexibility of an infrared sensor. The temperature profile of the digestion process is displayed in real-time on the ETHOS EASY terminal.



*Temperature profile of a soil digestion in accordance with US EPA 3051 using the MAXI-44 rotor*

The easyTEMP direct contactless temperature sensor provides:

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INCREASED EASE OF USE AND PRODUCTIVITY

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ENHANCED CONTROL IN ALL VESSELS

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FAST AND ACCURATE TEMPERATURE MEASUREMENTS FOR ALL SAMPLES

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SUPERIOR DIGESTION QUALITY

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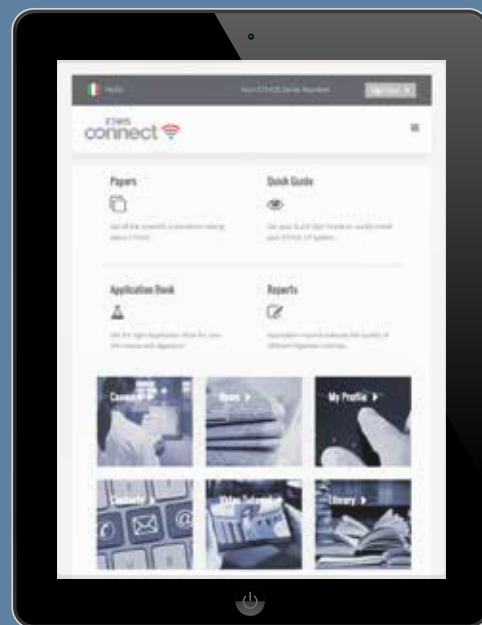
LOWER RUNNING COSTS

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# MILESTONE CONNECT

30 YEARS OF EXPERIENCE AT YOUR FINGERTIPS

Included with the ETHOS EASY is a unique web-based application: Milestone Connect. This app allows you to become a part of the Milestone community and gain exclusive access to a robust library of information: lists of parts, technical notes, user manuals, video tutorials, continuously updated application notes and all relevant scientific articles. With Milestone Connect you have instant access to information 24/7.



# FLEXIBILITY AND PRODUCTIVITY FOR ANY MATRICES



## SK-15 ROTOR

Regardless of the samples you're trying to digest, the Milestone SK-15 rotor is always an effective option to simplify your journey from sample to analysis, even with hard-to-digest samples. The SK-15 is a high pressure and temperature rotor with a capacity of up to 15 PTFE vessels of 100 mL. The design of the rotor coupled with its large vessel capacity ensures high productivity without compromising on performance. Safety is assured by our unique vent-and-reseal technology (US Patent 5,270,010), the foundation of Milestone's position as the leader in closed vessel microwave digestion.

## SK-15 APPLICATIONS



Agriculture



Beverage



Ceramics



Chemicals



Clinical



Cosmetics



Environmental



Food & Feed



Geochemistry



Metals



Petrochemical



Officials



Pharmaceutical



Pigments



Polymers



A safety spring built into the cover allows for precise venting of the vessel, if that should occur. Once the pressure has been reduced to a containable level, the cover closes again. Only the excess pressure, mainly generated by CO<sub>2</sub>, NO<sub>x</sub> fumes, is therefore released, allowing for a complete recovery of even volatile elements.

Scheme of the Vent-And-Re Seal technology

## MAXI-44 ROTOR

Many laboratories need to increase productivity and reduce the turn-around-time in metals analyses. The MAXI-44 perfectly matches these needs, providing high productivity, reliability and superior ease of use. The MAXI-44 is a high-throughput rotor featuring up to 44 PTFE vessels of 100 ml suitable for a wide range of samples, such as environmental, agriculture, food, and feed. The MAXI-44 is perfect for routine applications, combining an unmatched ease of use with the highest sample throughput available on the market today.



## MAXI-44 APPLICATIONS



Agriculture



Beverage



Environmental



Food & Feed



Officials



Pharmaceutical

## MUCH MORE THAN A DIGESTION SYSTEM

The ETHOS EASY embraces Milestone's philosophy of a "microwave labstation". The ETHOS EASY platform is capable of several applications beyond microwave digestion. Extraction of pollutants from environmental samples can be done in just few minutes, consuming less solvent than other technologies, thereby improving productivity while decreasing costs, all in full accordance with the US EPA 3546. Additional accessories are available to further expand the ETHOS EASY capabilities: additional digestion rotors, inserts and micro-inserts to reduce blanks in the digestion processes, a dedicated configuration for total fat determination in food samples which greatly improves turn-around-time, and an ashing accessory which converts the digestion system into a microwave muffle.



*fastEX-24*  
Extraction rotor for  
environmental sample



*SR-12*  
Extraction rotor for total  
fat determination in food



*MMR-15*  
Evaporation/  
Concentration rotor



*SK-10/12*  
High-pressure  
digestion rotor

# MILESTONE HELPING CHEMISTS

Established in 1988, Milestone is headquartered in Italy and has offices in Germany, Switzerland, the United States, China, Japan and Korea. We operate worldwide through a network of over 100 exclusive distributors, all providing our customers premium application and service support. Milestone's mission is to help chemists by offering them the most advanced instrumentation for sample preparation and direct mercury analysis in the world. Our industry-leading technology, in combination with fast, responsive service and applications support, allows Milestone to support our goal of providing you the highest return on investment possible.

## ADDITIONAL MILESTONE SOLUTIONS FOR ELEMENTAL ANALYSIS



### ultraWAVE

The Game Changer in  
Microwave Digestion



### duoPUR/subCLEAN

Acid Purification  
System



### traceCLEAN

Acid Steam  
Cleaning System



### DMA-80 *evo*

Direct Mercury Analyzer

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**MILESTONE**



HELPING  
CHEMISTS

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