



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



AT MILESTONE
**WE HELP
CHEMISTS**

Milestone Product Portfolio



MILESTONE

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

Established in 1988, Milestone is headquartered in Italy with its R&D and manufacturing centre in Germany and Switzerland and offices in the United States, China, Japan and Korea. We operate worldwide through a network of over 100 exclusive distributors, all providing our customers with 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 giving you the highest return on investment possible.

Microwave Sample Preparation

for trace element analysis

Acid Purification and Cleaning Solutions

for trace metals analysis

Direct Mercury Analysis

of samples

Microwave Extraction Systems

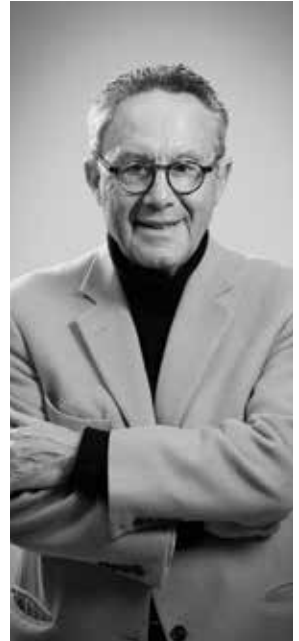
for environmental, food and natural products

Microwave Muffle Furnace

for QC testing

Microwave Synthesis Tools

for researchers



OUR CAPITAL
OUR PEOPLE
YOUR EXPERTS





ULTIMATE EASE OF USE
AND CONTROL



UNRIVALLED PERFORMANCE
AND THROUGHPUT



EXPERTISE
AND KNOW-HOW



SUPERIOR SAFETY
AND RELIABILITY



FLEXIBILITY

QUALITY ANALYSIS STARTS WITH GREAT SAMPLE PREP

Sample preparation is one of the most important steps in metals and trace metals determination, as it feeds the AAS/ ICP/ ICP-MS. Inherently the analysis quality is directly reliant on the sample preparation step. The ETHOS fully embody Milestone's philosophy and knowledge in microwave sample preparation. Specifically designed for closed-vessel acid digestions, they offer a perfect integration of microwave hardware, user interface, reaction sensor technology and pressure resistant vessels. The EasyTEMP contactless sensor directly controls the temperature of all the samples and solutions, providing accurate temperature feedback in order to ensure a complete and safe digestion in all the vessels. The ETHOS user-interface fully controls all digestion parameters, provides complete documentation and expedites the overall digestion procedure. The SK-15 and MAXI rotors ensure a high performance and a high sample throughput, whereas the user-friendly design simplifies the digestion process.

ETHOS UP

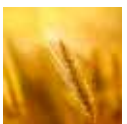
High Performance
Microwave Digestion System

ETHOS EASY

Advanced
Microwave Digestion System

ETHOS LEAN

Compact
Microwave Digestion System



Agriculture



Beverage



Ceramics



Chemicals



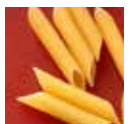
Clinical



Cosmetics



Environmental



Food & Feed



Petrochemical



Officials



Pharmaceutical



Pigments



Polymers



Geochemistry



Metals



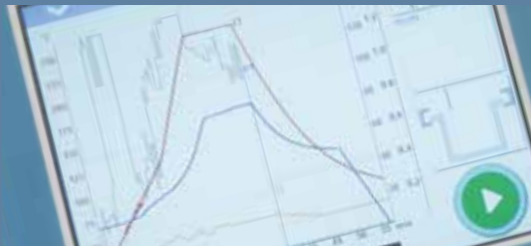
MARKET-LEADING
INNOVATION



INCREASED
PRODUCTIVITY



ULTIMATE
EASE OF USE



UNMATCHABLE
PERFORMANCE



GREATER RETURN
ON INVESTMENT

SUPERIOR THROUGHPUT, QUALITY & ROI **THE GAME CHANGER** IN MICROWAVE SAMPLE PREP

The ultraWAVE fully endorses our vision in microwave sample preparation. It exceeds norms and breaks conventions. It is incredibly easy to use, cost-effective, quick to adopt and fast to implement. The ultraWAVE has already transformed and enhanced the way analytical chemists prepare their samples for trace metal analysis in hundreds of laboratories all over the world. The ultraWAVE is based on Single Reaction Chamber (SRC) technology, invented (Patents pending) by Milestone several years ago. The high-performance stainless steel chamber allows for higher pressures and temperatures to be reached and any type of acids to be used. Disposable vessels eliminate the need to assemble, disassemble or clean between processing. Just as important, dissimilar samples can be processed simultaneously using any mixture of disposable glass, quartz or TFM vials, thus saving time and money. The ultraWAVE is simply the fastest, easiest and most efficient digestion system ever made!

ultraWAVE

Single Reaction Chamber
Microwave Digestion System



Agriculture



Beverage



Ceramics



Chemicals



Clinical



Cosmetics



Environmental



Food & Feed



Petrochemical



Officials



Pharmaceutical



Pigments



Polymers



Geochemistry



Metals



LOWER
ANALYTICAL BLANKS



IMPROVED
DETECTION LIMIT



90% REAGENT
COST SAVINGS



HIGH
PRODUCTIVITY



ON-DEMAND
ACID PURIFICATION

OPTIMIZING ANALYTICAL PERFORMANCE IN TRACE ELEMENT ANALYSIS

The Milestone Clean Chemistry Line is an innovative and complete portfolio of systems and accessories for reducing and controlling the analytical blank in ultra-trace elemental analysis. There is a growing awareness that sample preparation should evolve to the same standards of the most modern analytical techniques, such as ICP-MS, and there are several factors that can critically impact the quality of the data:

- The purity of the reagents.
- The cleanliness of the material in contact with the sample.
- The sample preparation method.

Each of these factors is related to the reduction and the control of the analytical blank. To address this issue, Milestone has developed a comprehensive line of products and accessories aimed to reduce and control the analytical blank, which perfectly complement our microwave digestion line.

duoPUR

Quartz Acid Purification System

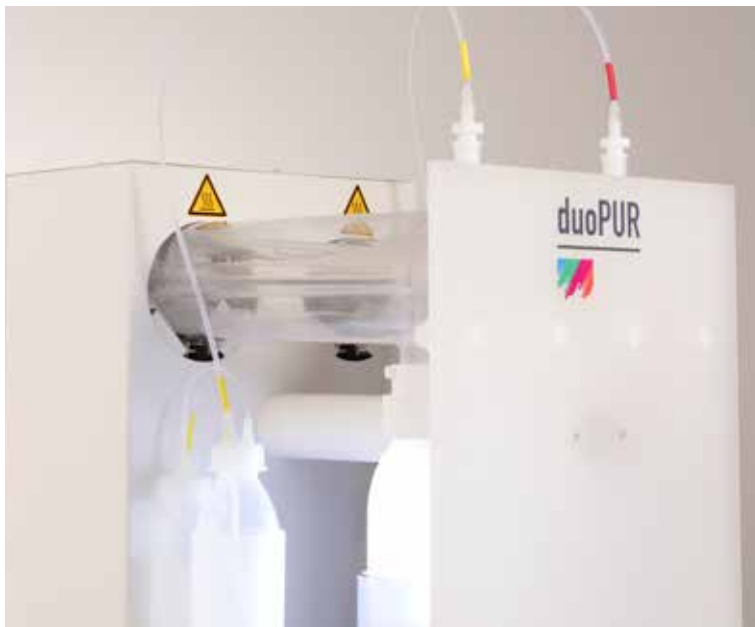
subCLEAN

PTFE Acid Purification System

traceCLEAN

Automated

Acid Steam Cleaning System



| duoPUR

The duoPUR consists of two quartz purification units, containing two heating elements, a water-cooled condenser, a high-purity PFA collection bottle, and a fully automatic acid loading/discharge system. The purification rate ranges from 50 to 400 mL per hour, depending on the power setting and the temperature of the cooling water.



| subCLEAN

Milestone's subCLEAN sub-boiling system is compact and easy to use. All parts that have contact with acids are made of high quality fluoropolymers. The subCLEAN is suitable for the purification of HF, as well as for HNO₃ and HCl. The subCLEAN rapidly condensates acid vapors into a collection bottle by forced cooled air.



| traceCLEAN

Cleaning the accessories used in ultra-trace analysis is a critically important. To address this need, Milestone has developed the traceCLEAN, a fully automated and self-contained acid steam cleaning system that cleans accessories used in trace metal analysis. Freshly distilled acid vapors continuously reflux within the sealed unit, thoroughly leaching any metal contaminants from vials, microwave digestion vessels, flasks, glassware and ICP-MS accessories.



INDUSTRY LEADING
PERFORMANCE



UNPARALLELED
EASE OF USE



HIGH PRODUCTIVITY AND
EFFICIENCY



LOW RUNNING AND
MAINTENANCE COSTS



IMPRESSIVE APPLICATION
FLEXIBILITY

SAVE TIME GO DIRECT FOR MERCURY ANALYSIS

The Milestone DMA-80 evo has been at the forefront of direct total mercury analysis for almost two decades. The challenges in mercury determination are well known to analysts who have often had to face a number of issues due to either tedious sample preparation process or different analysis steps. The DMA-80 evo analyzes any matrix (solid, liquid or gas) without any pre-treatment or chemical additions in as few as 5 minutes. We are, and have been, the benchmark for direct mercury determination in many industries, including: environmental, food, energy, cement, cosmetics, agriculture, mining and petrochemical. With thousands of DMA-80s installed in over 80 countries, Milestone has a wealth of experience and knowledge regarding direct mercury determination, ensuring your laboratory's state-of-the-art technology and premium customer support.

DMA-80 evo

Direct Mercury Analyzer

DMA-1

Direct Mercury Analyzer



Environmental



Food & Feed



Power plants/Coal



Cement/Mining



Clinical/Biological



Petrochemical



SHORTER
EXTRACTION TIME



LOW
RUNNING COSTS



ENHANCED
EASE OF USE



LOW
SOLVENT CONSUMPTION



CONSISTENT
AND RELIABLE RESULTS

INNOVATIVE & EASY TO USE EXTRACTION SOLUTIONS TO MAXIMIZE LAB WORKFLOW

Solvent extraction is the least evolved and most error-prone step in chromatographic analytical procedures. Many laboratories still use the Soxhlet method that was developed in 1879. Microwave-assisted extraction uses closed vessels to heat the extraction solvent above its atmospheric boiling point. The elevated temperature of the solvent increases the solubility of the analyte of interest, leading to dramatically reduced extraction times. Microwave extraction is faster and produces more accurate and precise results than other methods. Typical applications of microwave-assisted solvent extraction include: contaminants from environmental matrices, total fat determination in food samples and extraction of flavors and fragrances from natural products.

ETHOS X

Advanced Microwave Extraction System

for GC and HPLC Analysis

for Environmental Applications

for Green Extraction of Natural Products

for Total Fat Determination in Foodstuff



| Environmental

The Milestone ETHOS X microwave lab station in combination with our fastEX-24eT rotor offers your laboratory the simultaneous extraction of 24 samples in 40 minutes with minimal solvent usage using disposable glass vials. Our unique Weflon™ material provides homogeneous heating and facilitates the accurate contactless temperature monitoring of all vessels.



Environmental



| Total Fat

Traditional fat extraction methods are labor-intensive, time-consuming and involve large solvent volumes. The ETHOS X allows the simultaneous total fat determination of 12 samples in just 90 minutes. In addition to higher productivity, the ETHOS X also reduces the solvent consumption and uses a single method for a wide variety of samples.



Food & Feed



| Natural Products

The ETHOS X for Microwave Green Extraction of Natural Products overcomes all the limitations of traditional steam and hydro-distillation. The plant material is placed into the dedicated glass reactor and essential oils are extracted in a few minutes. The whole process is done without any solvent, providing high efficiency, higher extraction quality and reducing the overall extraction cost.



Cannabis



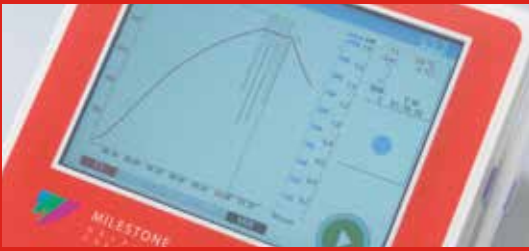
Food & Feed



Cosmetics



Academia



FAST ASHING
IN MINUTES INSTEAD OF HOURS



HIGH SAMPLE
THROUGHPUT



IMPROVED
WORKING CONDITIONS



FLEXIBLE
CONFIGURATIONS



ASTM, USP, SEMI AND ISO
COMPLIANCE

SAFE, REPRODUCIBLE AND FAST ASHING FOR HIGH PRODUCTIVITY LABS

The Milestone PYRO is an advanced microwave muffle furnace, suitable for several applications such as ashing, sulfated ashing, loss on ignition (LOI), residue on ignition (ROI), fusion and, all high temperature reactions under controlled conditions. The PYRO is available in 3 different and interchangeable configurations: ultrafast heating setup, high sample throughput setup and sulfated ashing setup. Therefore, it is the most flexible and adaptable microwave muffle furnace available in the market.

PYRO

Advanced Microwave Muffle Furnace

for High Sample Throughput

for UltraFAST Heating

for Sulfated Ashing



| High Sample Throughput

The PYRO with the High Sample Throughput setup ensures superior throughput, as the combination of microwave “superheating” and induced airflow results in a dramatic reduction of the ashing time. The ashing process is fully controlled by a precise and accurate thermocouple that provides constant feedback to the easyCONTROL software, which provides full data traceability.



Pharmaceutical



Food & Feed



Polymers



Petrochemical



| Ultrafast Heating

The PYRO with the Ultrafast Heating setup provides unmatched heating, as it reaches 800° C in just 5 minutes. The temperature is monitored and controlled via a contactless infrared sensor. The incredibly fast heating rate of this PYRO setup, combined with the properties of the Milestone UltraFAST crucibles, ensures ashing in literally in minutes.



Food & Feed



Petrochemical



Polymers



| Sulfated Ashing

The PYRO, with the Sulfated Ashing setup, completely removes hazardous operations on the heating blocks and performs the complete sulfated ashing procedure in one hour. Acid fumes are safely condensed and neutralized through a dedicated scrubber, while the easyCONTROL software provides complete control in full compliance with 21 CFR parts 11.



Pharmaceutical



Petrochemical



UNPARALLELED
FLEXIBILITY



GREATER
EASE OF USE



EASY
SCALE-UP



FASTER
SCREENING



SUPERIOR
PERFORMANCE

MAXIMIZING YOUR RESEARCH WITH FLEXIBLE TOOLS

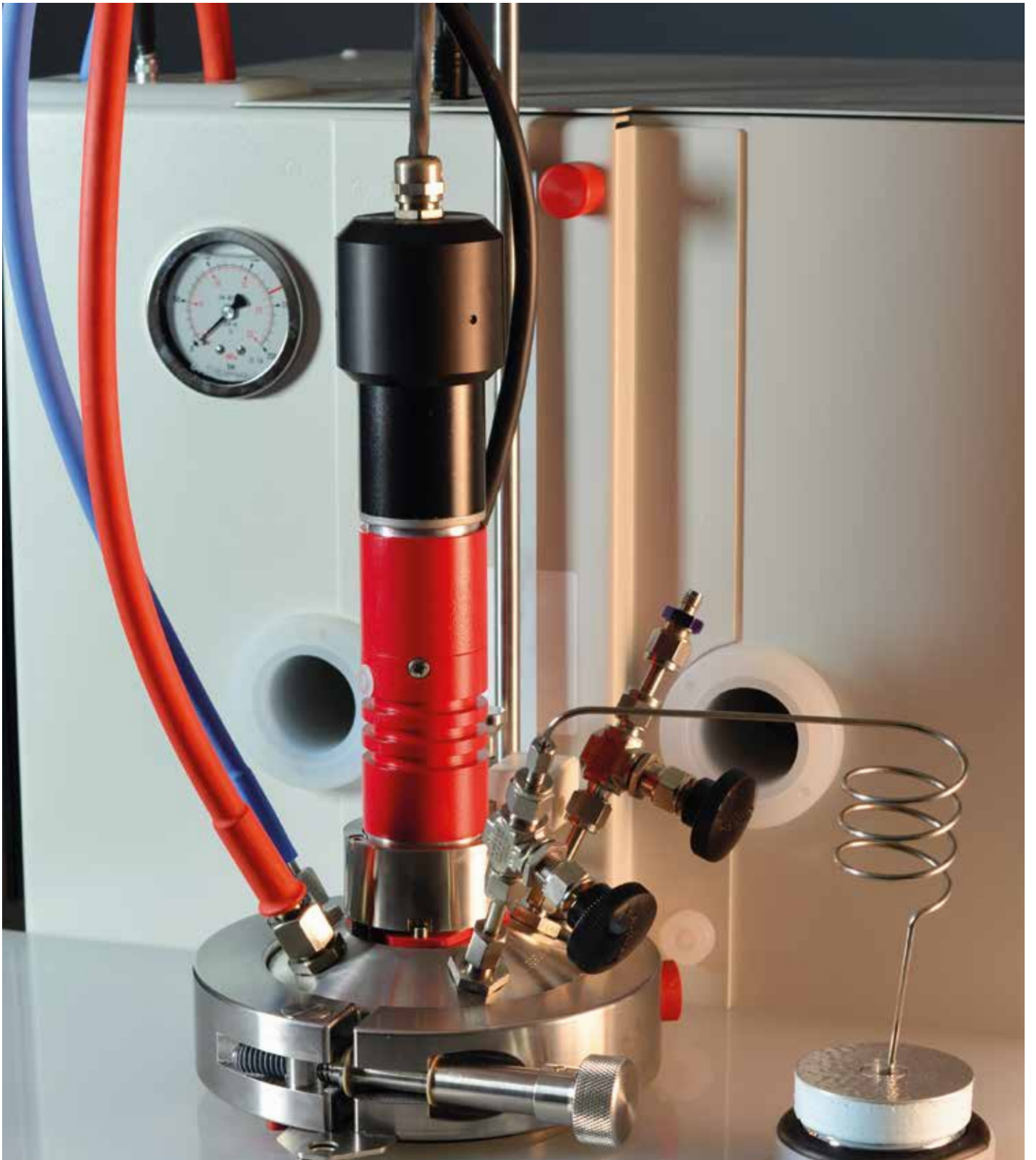
Microwave technology is changing the way of designing and optimizing synthetic protocols as well as their scaling up to multi-gram production. Since its introduction, it has allowed faster experiment runs and higher yields. Today, microwave assisted synthesis has become a cutting-edge technology across the pharmaceutical, biotech, polymers, fine and agro-chemical industries. With units installed worldwide, Milestone's flexiWAVE is a single microwave platform that, in combination with specific accessories, allows the chemists to perform classic glassware and high-pressure synthesis, as well as solid-phase reactions. Milestone's synthWAVE is designed for a safe, reliable and reproducible scale-up of microwave enhanced chemical reactions. It handles single or multiple reactions at temperatures of up to 300 °C and pressures of up to 199 bar. Incredibly easy to use, the synthWAVE allows small to large-scale batch runs and parallel reactions at conditions never explored before.

flexiWAVE

Advanced Flexible
Microwave Synthesis Platform

synthWAVE

The Game Changer
in Microwave Synthesis



Academia



Beverage



Carbon nanotubes



Ceramics



Chemicals



Cosmetics



Environmental



Food & Feed



Medical



Metals



Petrochemical



Pharmaceutical



Pigments



Polymers



MEETING REGULATIONS: MILESTONE'S VALIDATION PACKAGE

The compliance with regulations and data traceability are important values in modern analytical laboratories of pharmaceutical, food and other regulated industries. The qualification of the instruments and of their related methods into these industries often goes through multiple steps in order to ensure that the instrument meets these regulations. Milestone, as a leading technology and solution provider in microwave sample preparation, provides comprehensive Milestone Validation Packages (MVP) that meet these needs.

HIGH QUALITY ENSURED

GMP COMPLIANT

COST-EFFECTIVE

EXPERTISE AND KNOW-HOW

RELIABLE RESULTS

MILESTONE CONNECT

30 YEARS OF EXPERIENCE
AT YOUR FINGERTIPS



Milestone Connect is a unique feature for your best-in-class system that puts Milestone's 30-year applications experience at your fingertips. With the ETHOS UP, ETHOS EASY, UltraWAVE and DMA-80 evo, comes exclusive access to Milestone's Application Team via continuously updated application notes, a library of scientific papers, video tutorials and system manuals available 24/7. Milestone Connect remotely monitors the operation of the microwave digestion system or direct mercury analyzer through desktop, tablet or smartphone, greatly enhancing process control of sample preparation and analysis procedure.

REMOTE MONITORING

VIDEO TUTORIALS

APPLICATIONS LIBRARY

QUICK GUIDE

MANUALS AND DOCUMENTATION

MILESTONE

YOUR REALIABLE PARTNER

Today, the choice of the right instrument for your lab includes the selection of the right partner. Milestone has always been a user-centric company since its foundation in 1988. Our priority is to offer our users a superior overall experience, from our professionalism and expertise to our products and technology. Our corporate and local teams are highly trained in applications and service in order to guarantee fast and reliable support. We will assist you throughout the whole process, suggesting the right solution for your needs, developing dedicated applications and ensuring we meet your expectations. Our premium service support, along with the reliability of our products, minimizes laboratory's downtime and maximizes your efficiency.

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MILESTONE



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CERTIFIED

MILESTONE Srl - Via Fatebenefratelli, 1/5 - 24010 Sorisole (BG) - Italy
Tel: +39 035 573857 - Fax: +39 035 575498
www.milestonesrl.com - email: analytical@milestonesrl.com

MILESTONE INC. - 25 Controls Drive - Shelton, CT 06484 - USA
Tel: (203) 925-4240 - Toll-free: (866) 995-5100 - Fax: (203) 925-4241
www.milestonesci.com - email: mwave@milestonesci.com

MILESTONE GENERAL K.K. - KSP, 3-2-1, Sakado - Takatsu-Ku,
Kawasaki 213-0012 - Japan - Tel: +81 (0)44 850 3811 - Fax: +81 (0)44 819 3036
www.milestone-general.com - email: info@milestone-general.com

MLS GmbH - Auenweg 37 D-88299 Leutkirch im Allgau - Germany
Tel: +49 (0)7561 9818-0 - Fax: +49 (0)7561 9818-12
www.mls-mikrowellen.de - email: mws@mls-mikrowellen.de