



## MILESTONE'S ULTRAWAVE INCREASES SAMPLE PREP EFFICIENCY AND LOWERS COSTS FOR PHARMACEUTICAL TESTING LAB

### | CUSTOMER

Exova is a global provider of laboratory testing advising and assuring services to many of the world's most innovative companies. From aerospace to automotive, pharmaceuticals to polymers, and food to fire safety, Exova's goal is to ensure its customer's products and services meet the requirements for quality, safety and performance through its testing services.

### | CHALLENGE

"We had a wide range of pharmaceutical and supplement samples to digest for metals analysis, including many challenging matrices."

### | SOLUTION

"In mid-2011 we invested in an ultraWAVE to help reduce our sample prep bottleneck. The ultraWAVE exceeded our expectations, increasing throughput, reducing costs, and improving digestion quality. It increased the sample digestion capacity of the lab by 50%-70%, but due to the large increase in our sample workload, we needed to further increase our sample prep capacity. In May 2012, we ordered a second ultraWAVE unit."

### | BACKGROUND

Exova operates from over 100 facilities in 24 countries and employs over 3,500 people across Europe, North America, South America, the Middle East and Asia/Asia Pacific. Exova's Santa Fe Springs, CA, lab is part of Exova's Health Sciences Division and specializes in testing for the pharmaceutical and supplement industries. Formerly known as West Coast Analytical Service, the lab opened in 1984 as an independent testing laboratory, and has a long and successful history of trace metals analysis, being one of the first testing labs in the US to use ICP-MS.

### | INSTRUMENTATION

With a long history in ICP-MS analysis, our lab is well equipped for metals testing with 6 Agilent ICP-MS, and 1 Thermo iCAP ICP-OES. We analyze 100's of samples per week, with a large proportion (50-60%) requiring digestion. We have Environmental Express block digesters, a CEM MARS closed vessel digester, plus an Anton-Paar high-pressure asher (HPA) for the more difficult matrices. Our challenge is that many samples are difficult to digest and there is a wide variety of sample types. Batches may only consist of 1-2 samples, so running large batches of similar samples is not always possible. With block digestion it is not possible to get complete digestions with many sample types. The difficult sample types we digest also shorten vessel lifetime on our closed vessel

# LAB PROFILE

## ULTRAWAVE | PHARMACEUTICAL



system and consumable replacement costs are rather high. The limitations of HPA are sample contamination when using older quartz tubes, and also potential loss of volatile elements such as Sb and Hg.

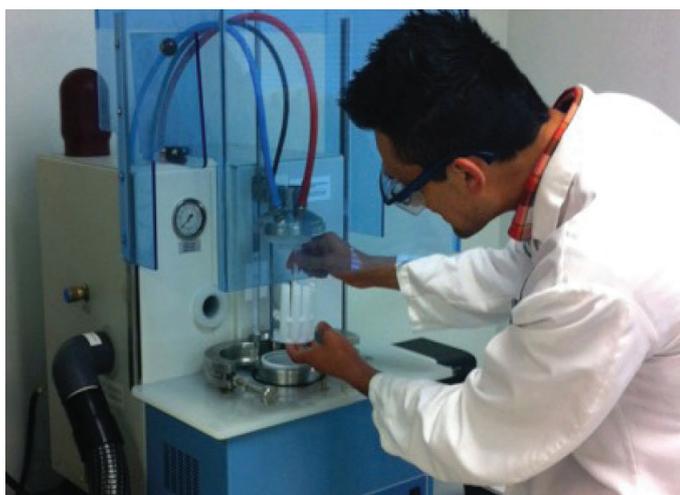
### | THE ULTRAWAVE

We were attracted to the ultraWAVE due to its ability to digest mixed sample types, its use of disposable glass vials, and the high temperature and pressure capability (i.e. ability to digest difficult matrices and to produce complete digestions). We invited Milestone into our lab to demonstrate the ultraWAVE and we were impressed at the digestion quality achieved from the range of tough sample types we tested it with. We decided to purchase the system and upon installation it was quickly put to work.

The digestion protocol we use with the ultraWAVE is very simple: 2mL HNO<sub>3</sub> + 0.5mL HCl with 50 -100 mg samples sizes and 4mL HNO<sub>3</sub> + 0.5mL HCl with samples sizes >100 mg. We essentially use the same temperature

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– Samina Hussain, Senior Chemist/ Metals Group Leader, Exova



program regardless of sample type and it is possible to run different sample types and weights together in the same batch. This is one of the key benefits of the UltraWAVE – the ability to run all samples together and not to have to separate sample types into separate batches. We use the 15 position rack, and use either disposable glass or quartz vials, depending on the application. For HF containing samples we use the TFM vials. Although all vials are placed in the reaction chamber together, we achieve good recoveries for volatile analytes and have not observed any cross contamination. We run everything from raw materials through API to finished product, so the flexibility of the ultraWAVE is key to us.

### | FUTURE PLANS

Although we still use our older digestion systems for previously validated methods, we are working with our clients to switch their validated methods to the ultraWAVE. We are able to digest 50-70% more samples in the lab thanks to the ultraWAVE. The ultraWAVE is in use daily — often for 8 hours. As a result, we decided to add a second ultraWAVE system and placed an order in May 2012. The ultraWAVE has transformed our sample digestion capabilities and we are looking forward to getting a second unit in house, which will also give us the capacity we need to handle the expected growth in sample workload as a result of the upcoming USP methods <232>/<233>.

### ABOUT MILESTONE

With over 50 patents and more than 20,000 instruments installed in laboratories around the world, Milestone has been widely recognized as the global leader in metals prep technology for the past 30 years. Committed to providing safe, reliable and flexible platforms to enhance your lab's productivity, customers worldwide look to Milestone for their metals digestion, organic extractions, mercury analysis and clean chemistry processing needs.



**MILESTONE**  
H E L P I N G  
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