



## IMPROVING TURNAROUND TIME AND PRODUCTIVITY IN TOTAL FAT DETERMINATION

### | CUSTOMER



Eurofins Scientific is the recognized leader in food and pharmaceutical product testing. They also specialize in environmental laboratory services and are one of the global market leaders in agrosience, genomics and central laboratory services. Eurofins has over 15,000 staff in more than 190 laboratories across 36 countries that use state-of-the-art analytical techniques to support clients' quality and safety standards.

### | CHALLENGE

At Eurofins Scientific in Nantes, France, the laboratory needed to reduce analysis time on over 200 samples received per day in order to produce results faster for their clients. The current sequential technology was a time consuming technique and not able to provide reproducible results on samples with very low fat content.

### | SOLUTION

The lab purchased seven Milestone's ETHOS X microwave extraction systems as an alternative to sequential and Soxhlet techniques. The ETHOS X performs total fat determination on food samples in a fraction of the time with minimum solvent usage.

### | BACKGROUND

Eurofins offers high quality assurance and control services such as testing, certification, inspection, audits, technical services and regulations for manufacturers, brand owners, distributors and retailers throughout the world.

Since throughput and fast delivery of results is a key point for the Eurofins group, they have already in use a Milestone ultraWAVE digestion system for sample preparation for trace metal analysis.

### | CHALLENGE

Eurofins needed to determine the **total fat content in over 200 samples per day** on several food matrices such as meat, sausage, cheese, cookies etc.

Prior to the implementation of the ETHOS X method, they were using two different techniques:

1. Firstly, a sequential approach technique based on hydrolysis followed by solvent extraction that employs an "inverted gravimetric method" where fat content is determined by weight loss of the sample instead of by weight of the extract as normally calculated. The process involved the use of HCl and took approximately 3 days to complete. The main challenge was to reduce the time to obtain results as it was too long for a laboratory with a very high throughput and productivity per day. The process took approximately 3 days to complete. Moreover, the process required high volumes of reagents

## LAB PROFILE EXTRACTION | FAT DETERMINATION



to remove fat from the sample matrix, resulting in very high running costs and corrosion of the unit.

2. Secondly, traditional Soxhlet approach was used for samples with low fat content. This approach was time consuming and required a large volume of solvent thus exposing laboratory technicians to possible health risk.

### THE ETHOS X IMPLEMENTATION

Milestone product specialists presented the ETHOS X for total fat determination to Eurofins lab in Nantes (France) and Mr. Regis Guerin, Production Unit Manager Nutritional Labelling, saw the potential of this new approach, so they invested in one system. After a couple of months of testing and method optimization on several CRM materials, they purchased four more instruments.

Today they have installed **five (5) ETHOS X units with ten (10) rotors** to perform total fat determination on a wide suite of food samples. Eurofins recognized in the ETHOS X a perfect solution for their needs since the new method boost their total fat determination to 300 samples in a single working day.

An additional benefit of the ETHOS X process is the ability to connect a balance to the instrument itself, so that its operating software automatically calculates the fat content and provides all the statistics associated to the analysis of the samples. This new method has allowed Eurofins to replace all the current methods of total fat determination and to **standardize the use of a single method** in on most of their samples.

Moreover, Eurofins had to use the outdated Soxhlet method, when larger sample mass was required, as the newer sequential systems were not suitable for that.

*“The first reason we chose ETHOS X was that we need to have faster results. Sequential technology required us 3 days for delivery of the results. Moreover, with that technology, we are not able to provide reproducible results on samples with very low fat content since the sample amount was limited.”*

– Mr. Guerin, Production Unit Manager, Eurofins Nantes Lab



The ETHOS X matches these requirements too, enabling total fat determination even on large sample amounts. For over two years, **Eurofins has validated and implemented the ETHOS X method for a wide array of samples**, replacing the other time-consuming procedures.

This approach result into a better turnaround time for their customers and a lower cost per sample, through a lower initial investment and higher throughput.

*“The advantages of ETHOS X compared to sequential technology are the lower initial investment, the universal method for all food samples and with no unit corrosion.”*  
– Mr. Guerin, Production Unit Manager, Eurofins Nantes Lab

### FUTURE PLANS

They have chosen ETHOS X over conventional extraction techniques for its advantages in terms of effectiveness, reproducibility and reduced solvent consumption. They are planning to further expand the ETHOS X capabilities for other fat determinations that are still done with soxhlet or other techniques.

### 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.



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