

## FOSS IN LABORATORIES

ANALYTICS BEYOND MEASURE



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Today even the most accomplished food and feed producers face the challenge of getting more and more out of their raw materials and finished products, while still improving their product quality. This means that there is an increasing demand for commercial and public laboratories to ensure high quality data to secure food safety and prevent food fraud.

That is a tall order in an industry built on highly variable raw materials and quickly changing markets. But where nature is unpredictable, data harvests never fail.

By driving digitalisation forward, you can add a new level of automation to your business and secure quality and consistency. You will be able to limit the number of human errors that slow you down. Scale your business faster. Decrease turn-around time and reduce

manual labour and labour costs. A lot can be lost and a lot can be won on the journey from raw material to finished product. That is why we have spent the last 60 years developing and refining instruments that measure every little step of the way. We translate measurements into mathematical algorithms that power automated systems, optimise your manufacturing process and make you grow. Securing and improving food quality is what we do.

Neither natural resources nor knowledge go to waste. Intelligent information management can turn existing production into efficient processes that generate less waste, bigger yields and higher quality.

We call it:  
Analytics Beyond Measure









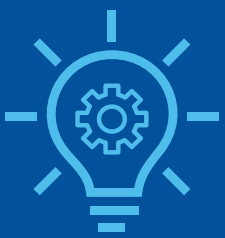
# YOUR PARTNER IN THE LABORATORY

Laboratory methods hardly change, but the tools for implementing them are always developing.

FOSS solutions take the burden of laboratory testing by avoiding repetitive, manual procedures, while keeping contact with chemicals to a minimum. Automated procedures also help to avoid inevitable human error so that results are consistent and traceable.

Over time, the streamlined operations enabled by effective use of technology boost capacity and throughput, and reduce cost per sample for a rapid return on investment.

The value of any FOSS laboratory solution can be summarised in three focus areas:



## **Innovation:**

With the increasing demands of a competitive market, labs have to keep running faster. That is why a laboratory solution from FOSS gives you cutting edge data handling, technology and innovative design to streamline your lab procedures and optimise your business potential.



## **Throughput:**

Running a lab can be costly and time consuming. A Tecator™ Line instrument from FOSS is designed to give you the highest level of automation. We make it possible to process an unrivalled amount of sample tests with the lowest turn-around time and the highest possible accuracy, at minimal cost.



## **Safety:**

Safety is one of the cornerstones in good lab practice, therefore we have made it possible for your lab to run faster than ever before, without compromising on safety or environment. Ultimately, safety is about taking care of people and this is why an instrument from FOSS is designed with the best safety features imaginable.

More than 30,000 laboratories around the world use a FOSS solution for their daily work. Our systems are supported by local expertise worldwide and more than 250 detailed applications according to AOAC, ISO and more.

### **Applications for food, feed, agricultural and environmental testing**

Our specialisation in food, feed and environmental testing allows us to fully understand our users' demands and deliver practical solutions. FOSS solutions cover a range of testing requirements including digestion, distillation, fibre analysis, sample preparation and rapid methods.

### **Main applications for FOSS solutions include nutritional labelling parameters such as:**

- Nitrogen/protein
- Total and crude fat, and other extractable matter
- Crude, detergent and dietary fibre
- And many more

Many years of collaboration with the industry ensures continuous improvement in analytical operations through development of innovative and practical solutions targeted at the demands of our core business areas.

### **Getting the full value**

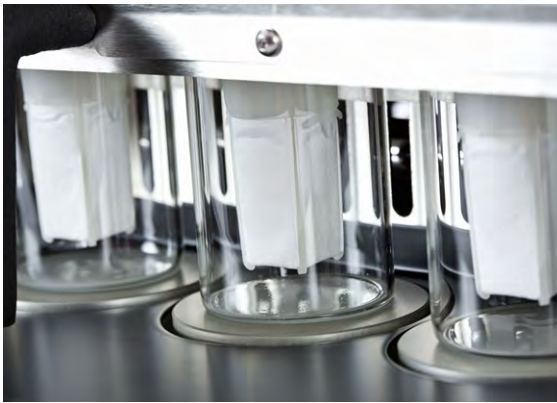
Completing the picture, FOSS offers support around the globe from trained local staff. A broad range of support and maintenance options is available. Coupled with the legendary robustness and uptime of FOSS Tecator instruments, it all adds up to a long instrument lifetime and great value for money.

### **Tecator™ Line - Same principles, new technology**

From those distinctive Tecator orange instruments developed over 30 years ago to the sleek lines of the latest, fully automated solutions, FOSS has always been at the forefront of innovation in laboratory analysis. Today, the same design principles behind the original Tecator instruments continue.







The unique, patented Hydrocap filter contains the sample all the way from initial weighing through hydrolysis to final extraction.



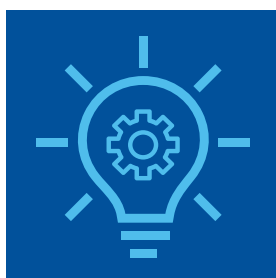
Easy and safe collection of solvents for disposal or re-use.



Hotplates with individual temperature control and automatic shutdown feature that allows out-of-hours operation.







## Innovation

# PROGRESS PAYS

FOSS innovations are helping to make a real difference to laboratory operations around the world in research or larger commercial laboratories alike. Constantly improving on established methods, our investment in innovative technology gives you new opportunities to improve your laboratory operations, for instance:

- Automation minimises manual operations and improves overall throughput
- Analytical data can be integrated in your LIMS system
- Technology saves resources and time
- Use of water, chemicals, solvents and energy is minimised

Year after year, constant investment in the work of our talented designers, scientists and engineers means that the next money-saving, time-saving, safety-improving solution is already on the way to you.

FOSS innovative solutions respect the official, classic ways of doing

reference methods in the lab and at the same time set new standards for time savings on sample handling and risk reduction. For the operator FOSS offers less manual handling, a safer working environment and an intelligent user interface that you can rely on.

Documentation of accuracy is part of any product development project. With FOSS' high quality standards our wet chemistry solutions serve as a basis for worldwide calibrations of indirect methods in many industries. Whatever your analytical solution, be it in-line, at-line or in the lab, calibration work will be needed on a regular basis. For networked instruments you can ensure consistent performance of all instruments with cutting edge FOSS connectivity services.

Whether you want to optimise on production yields, monitor and control product quality or simply save on use of raw materials, our innovative lab solutions ensure that you will get the most of your process investments.



## Throughput

# LESS HANDLING, MORE RESULTS

Not only does reduced handling improve safety. Turn-around time and overall throughput is boosted by the steady, consistent flow of results generated by automated solutions. From sample preparation to fully automated analysis, improved efficiency increases uptime, is less time consuming and reduces the use of chemicals and solvents, not to mention the money saved by reducing the use of highly-trained staff performing manual, repetitive tasks.

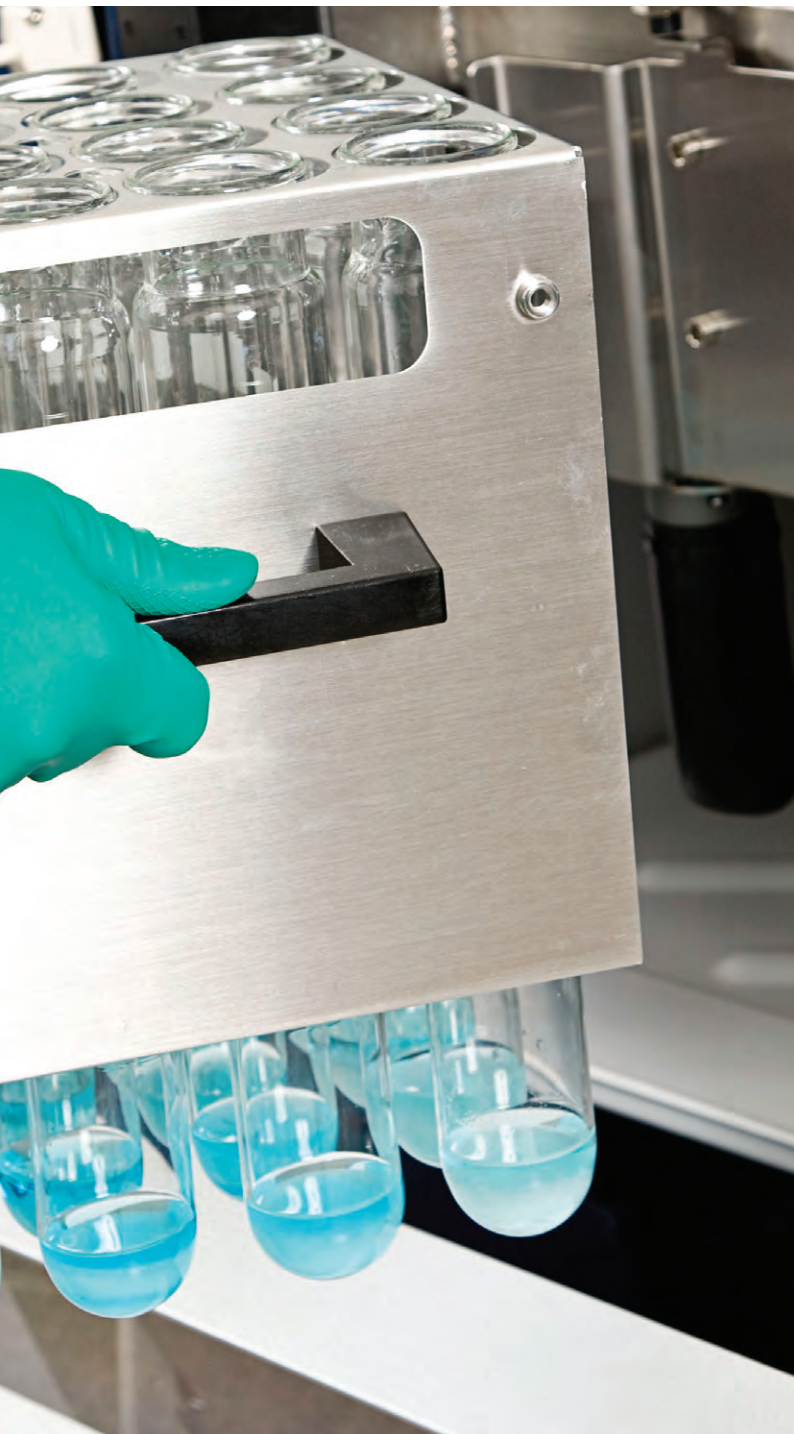
The acid hydrolysis step to release bound fat in pre-fat analysis, for example, is usually performed by boiling a sample in hydrochloric acid. After filtration and rinsing of the filter cake, the residue is dried and can then be subjected to solvent extraction. The procedure is time-consuming and involves sample transfer steps that can cause loss as a main source of error.

FOSS has simplified the process with the help of its integrated fat analysis concept, eliminating the need for sample transfers, thereby reducing cost per sample.

A range of batch handling accessories and tools also help to improve throughput and reliability of results.



12-place hydrolysis sample holder for unattended operation and higher throughput.



## Reliable results are the foundation of any laboratory

No result is better than its reference. That's why FOSS automated chemical analysis solutions rely on a solid calibration based on officially approved reference methods\* and regulations such as ISO, AOAC, IDF and EPA.

By using an officially approved method you will:

- Get results that are valid on a worldwide basis
- Save time by minimising work to validate the application
- Get accurate results on a wide range of samples with robust methods
- Be able to use the collaborative study data for your measurement uncertainty values

\*The European standard for determination of acid detergent fibre (ADF) and acid detergent lignin (ADL) in feed and the AOAC standard for fat analysis



Operate two solvent extraction units from one control unit for reduced manual handling.



Batch handling and auto sampling for after hours operations.



Built-in safety sensors for improved operator safety.



Built-in fume hoods prevent exposure to solvent fumes during addition of solvents.





Speed dial for safe and consistent solvent addition eliminates manual handling of chemicals.



Safety

## REDUCING RISK

Because people and chemicals don't mix, we have found lots of ways to help you avoid contact with chemicals, solvents and the fumes they create.

### With a FOSS solution:

- Automation reduces the risk of contact with chemicals and solvents
- The smart use of technology simplifies operations and reduces the risk of accidents
- Safe systems allow versatile operations, for example, allowing a broad range of solvents

After all, why should trained staff have to fill beakers or empty tubes when an instrument can do it under safe, controlled conditions?

Operations can be performed with different levels of automation with automatic control of cooling water for instance. Temperature sensors, door sensors, electrical sensors and pressure sensors – you name it –they all alert you to dangerous situations. Enclosed systems and automatic draining systems minimise contact with chemicals, reagents and the fumes that they create.

## **Just load, start and walk away**

The FOSS Soxtec™ system employs a patented four-step solvent extraction technique. It performs boiling, rinsing and solvent recovery. In its fourth step, the sample cup lifts off the hot plate, using residual heat to pre-dry while eliminating boil-dry risk. The entire process is a fully automatic, unattended operation. The system will shut down automatically when finished.



