

FOSS

FOSS IN MEAT

ANALYTICS BEYOND MEASURE





ANALYTICS BEYOND MEASURE



Today even the most accomplished meat producers face the challenge of getting more and more out of their raw materials while still improving their product quality. That is a tall order in an industry built on highly variable raw materials and quickly changing markets. But where nature can wreak havoc on your production, 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. 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

TIGHTEN UP WITH ACCURATE ROUTINE ANALYSIS

The speed and accuracy of routine analysis is a vital tool in a modern meat production.

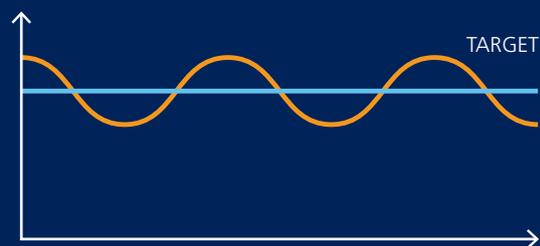
Let's take analysis of fat as an example. Make the fat content in your products too low and you risk losing profit. Make it too high and you risk dissatisfied customers and a warning from your controlling authority. But make it just right and you can maximise profit while meeting end product declarations exactly.

In addition to measuring fat, you can do rapid checks on protein, moisture, collagen, salt content etc. and scan for foreign objects. Measurements can be made by anyone on robust, easy-to-use analysers positioned at the production line, in the laboratory or directly in-line in the process. And if you are engaged in traditional laboratory analysis, safe and reliable FOSS solutions help you to give reference analysis results with speed and accuracy.

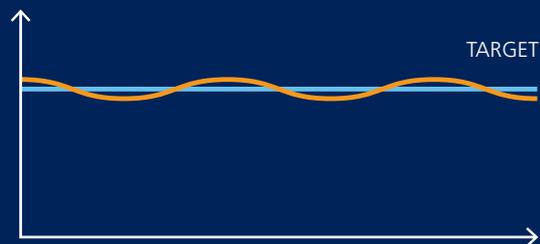
FOSS routine analytical solutions can help you to:

- Optimise raw material use
- Keep the fat content of products exactly in line with standards
- Improve production efficiency

- Comply with end-product specifications and declarations
- Ensure end-products are free from foreign objects like metal and bone
- Satisfy legal demands
- Maximise profits



Inconsistent quality at higher cost: fat content swings above and below your target leading to inconsistent products and/or overuse of expensive lean meat.



Consistent quality at lower cost: fat content follows your target closely so that you get the right lean/fat ratio and the right end-product.

FOSS analytical solutions give you accurate, timely information according to the demands of your production environment.

Our knowledge and experience ensures that your process analysis solution is right for your demands and can be applied quickly and easily to your production.

A typical analysis solution from FOSS includes:

- FOSS analyser based on proven technology
- Software for routine operations and/or process control
- Ready to use calibration for analysers based on near infrared and X-ray technology
- Remote analyser surveillance by FOSS experts – securing you high accuracy of your instrument
- Preventive maintenance agreement to secure optimal uptime and performance



GET THE MOST FROM TRIMMINGS



The fat content in meat trimming has traditionally been measured by periodic tests with “butcher’s eye” or by chemical analysis methods.

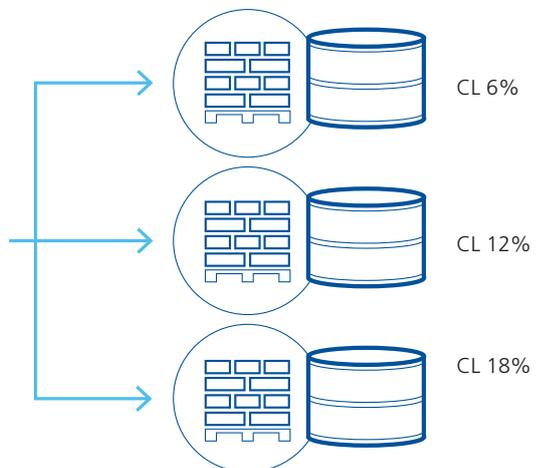
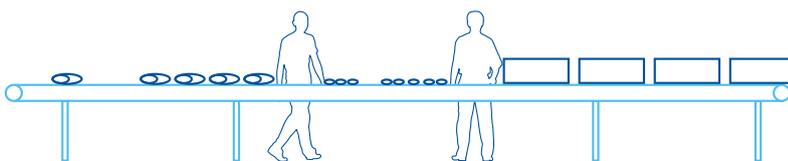
However, such methods do not offer satisfactory accuracy for trim product and process control.

Routine analysis based on accurate and fast analytical methods will give you much more control of your trim production and will help you to optimise the sales value of your trimmings.

Using such methods for routine analysis you can:

- Avoid lean meat giveaway in each carton and/or pallet/combo
- Optimise the value of trim categories by reducing the variation between each carton on a pallet
- Reduce the risk of fat fines/fat claims
- Stop foreign objects getting into final products
- Keep a record (fat, weight and Foreign Object Detection) of cartons on a pallet or combos for use in case of disputes

ANALYTICAL SOLUTIONS FOR CONTROLLING TRIMMINGS



With its high accuracy, obtained from 100% scanning of the meat, MeatMaster™ II has become the standard for in-line fat analysis of complete batches of meat. Foreign object detection is performed at the same time. At-line analysers such as MeatScan and FoodScan are alternative solutions for testing samples from batches.



About X-ray technology

X-ray scans 100% of the meat passing through the scanning area. X-ray can be used for scanning chilled or frozen raw meat and will give information about content of Fat and Weight, and will detect foreign objects with a density higher than 1.7 g/cm³ (metal, bone, glass etc.).

The FOSS patented x-ray system in MeatMaster™ II uses the DEXA concept, which results in the highest possible accuracy. The system scans meat in the form of whole cuts, trimmings or minced meat up to 20 cm in height. The meat can be in cartons, plastic trays or loose on the belt.

OBJECTIVE GRADING OF CUTS

With x-ray technology it is possible to objectively grade whole cuts like pork bellies, pork hams etc. into uniform categories, which is not achievable via the traditional visual inspection. The grading is based on fat measurement and can be combined with image recognition.

The benefits of this technology apply to manufacturers of bacon, producers of dry ham products and other manufacturers of finished meat products based on whole meat cuts.

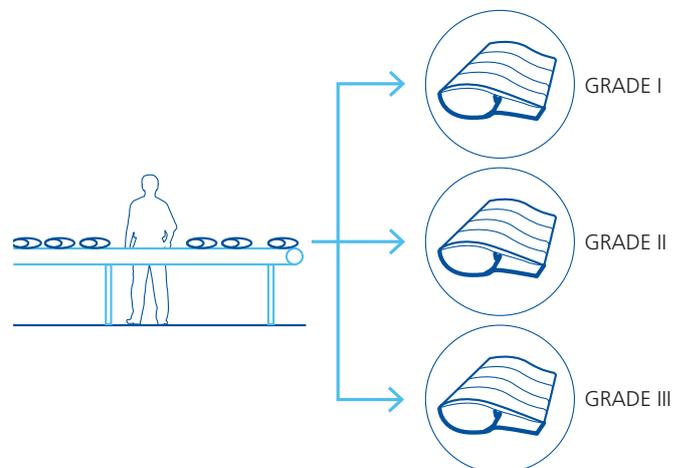
Suppliers of raw meat cuts can also exploit the opportunity to ensure that deliveries are to specification (size, length, width, thickness), CL-content and without foreign objects.

This grading method helps you to:

- Enhance your brand image by improving final product consistency
- Improve production yield from sorting raw material into uniform categories
- Improve production yield by reducing rejection rates of final products

- Minimise labour costs for inspection of the cuts
- Avoid paying for raw material which does not fulfill specifications

ANALYTICAL SOLUTIONS FOR GRADING CUTS



The MeatMaster™ II in-line analyser can be used to segregate the meat cuts according to CL-content and size (dimensions) while checking for foreign objects at the same time.

About NIR technology

FOSS uses the NIR transmission method combined with ANN calibrations in MeatScan™ and FoodScan™ 2.

The transmission method is superior to the reflectance method when analysing inhomogeneous products like meat. The superiority comes from being able to scan through the meat and not just the surface like reflectance methods do.

The ANN calibration model results in better accuracy than analysers using PLS calibrations. Furthermore, the ANN calibration model is more cost-efficient for the user.



MORE PROFIT FROM GROUND MEAT

A fast and accurate standardisation process is the key to success in the production of ground meat based products.

With FOSS solutions it is possible to obtain an accuracy at batch level (like the mixer) as low as 0.5%. Thus, in many cases, improving accuracy by 2-3%, resulting in improved earnings. The payback time of the investment can be as low as a few months.

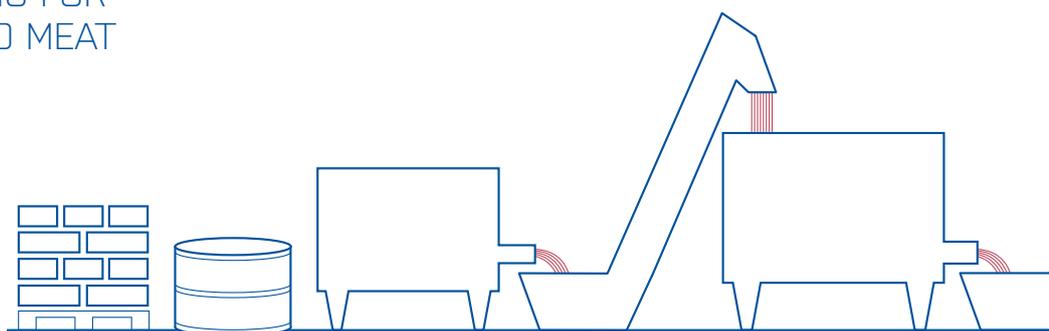
With fast and accurate FOSS solutions you obtain maximum control:

- Optimise raw material use
- Process fast standardisation of batches
Increase line efficiency by reducing time for manual sampling, sample preparing, testing, possible adjustment and re-work
- Improve brand recognition, leading to more sales from improved final product quality and consistency
- Prevent foreign objects in final products and/or potential damage to machinery
- Pay exactly the right price for raw material

ANALYTICAL SOLUTIONS FOR CONTROLLING GROUND MEAT

FOSS provides solutions for rapid and accurate supplier and process control for the production of ground meat products for use at-line (MeatScan™, FoodScan™) and in-line (MeatMaster™ II).

Solutions are available also for final product control.



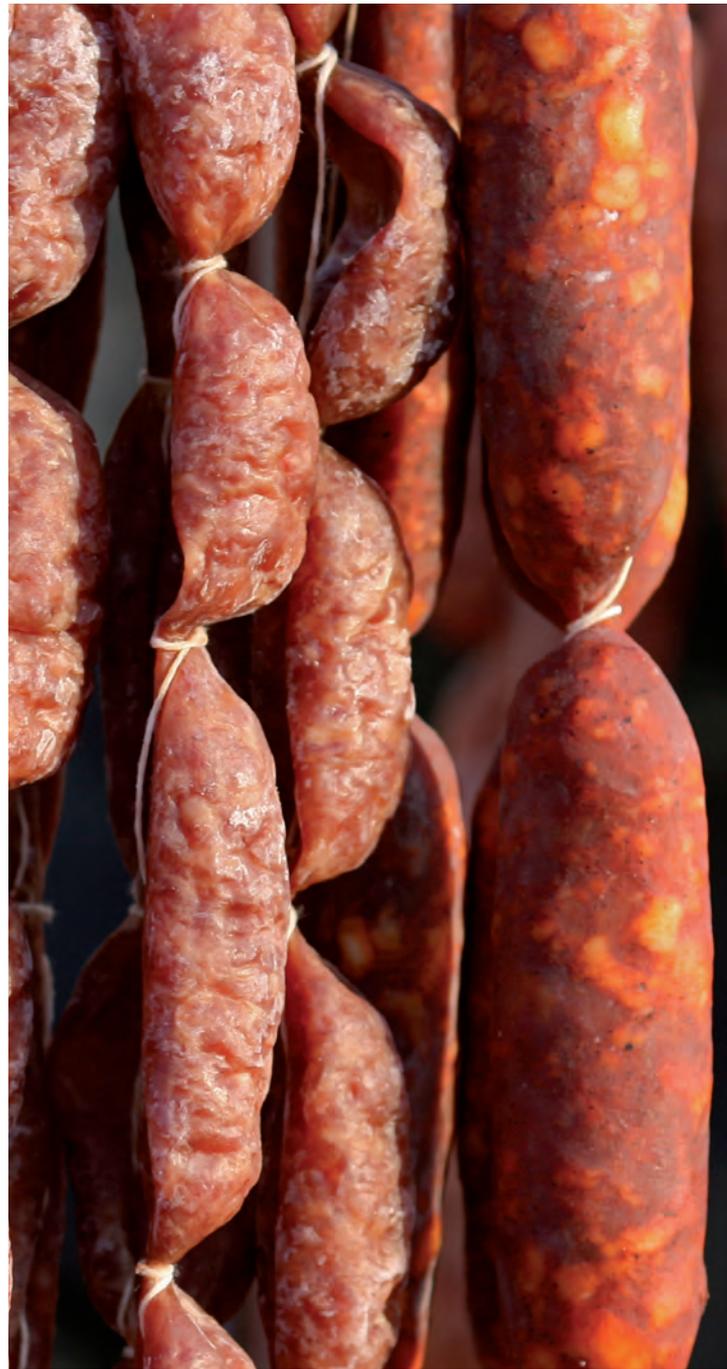
QUALITY SAUSAGES AT THE RIGHT PRICE

As with ground meat, a fast and accurate analysis of CL/fat is vital for profitable sausage production as well as other parameters like content of moisture, protein etc.

Factors such as mixing time and fat smearing in dry sausage production can also affect quality and shelf life.

FOSS solutions help you to:

- Standardise batches according to specifications and increase line efficiency by reducing time for manual sampling, sample preparing, testing, possible adjustment and re-work.
- Reduce mixing time in order to avoid overstressing the raw material
- Optimise use of raw material
- Pay exactly the right price for raw material
- Improve brand recognition, leading to more sales from improved final product quality and consistency
- Avoid the risk of fat smearing in dry sausage production (Fat smearing on the inside of the sausage casing will prevent moisture from being extracted from the sausage during the drying process. Excess moisture can cause bacteria to grow, leading to shortened shelf life and reduced quality.)



GETTING MORE PROTEIN IN THE RENDERING



Protein meal and tallow are the two most important outputs from the rendering process.

With sales prices depending on protein content, accurate measurement of protein in meals is an important control parameter for rendering plants. Similarly, parameters such as fat, moisture and ash are important for ensuring an optimal production process and for product declaration purposes. For producers who segregate and blend meals of varying protein content to reach specific protein targets in their final product, agility in the production line is a necessity. In-line or at-line analysis of meals enables fast adjustment of the production process at the time of blending, making sure the right protein content is reached in the final blend.

Fast and accurate analysis of meals allows you to:

- Optimise the value of the final product by controlling protein content
- Adjust the production process to ensure the highest yield based on measurement of ash, fat, moisture and protein
- Improve brand recognition leading to more sales from improved final product quality and consistency

THE OUTPUT PRODUCTS FROM A SLAUGHTERHOUSE CAN BE DIVIDED INTO TWO OVERALL GROUPS:

Main products from cutting & deboning:

Meat cuts, trimmings and fat

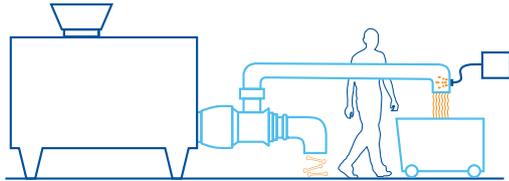
Products from the rendering process:

meals, oils, lard, tallow etc., which are used:

- as ingredients in food production
- as ingredients in animal feed production
- as energy in the meat plant, ingredients in pharmaceutical industry etc.

PRODUCE POULTRY MDM TO SPECIFICATIONS

TYPICAL ANALYSER INSTALLATION POINT



Installation after the bone separator and before packing of product. Hygiene certified according to USDA

A fast analytical solution is the key to obtaining complete control of your poultry MDM production.

This gives you the possibility to adjust your production process to improve final product consistency and ensure that your MDM product is produced according to specification. Furthermore, you can obtain information on final batches so you can segregate them according to fat content.

Users of poultry MDM, like manufacturers of chicken or turkey sausages, nuggets, etc., can also benefit from a FOSS analyser by checking incoming raw material (supplier control) and improve process control, resulting in improved final product consistency.

Advantages of process control in the poultry MDM production process include improved yield and profit from:

- Saving on lean meat giveaway
- Consistent product quality
- Fewer customer claims
- Increased production efficiency
- Eliminating cassation of MDM product
- Reducing or eliminating downgrade

About in-line NIR technology

FOSS uses NIR Lateral transmission technology for in-line poultry MDM analysis. The lateral transmission method is superior to NIR reflectance solutions as it penetrates deeper (10-15 mm versus 0.5-1 mm with reflectance) into the sample and therefore gives you a more representative measurement. Furthermore, the risk of fat smearing on the sensor and detector, which is often a problem when using in-line probes, is as good as eliminated with the Lateral Transmission method.



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