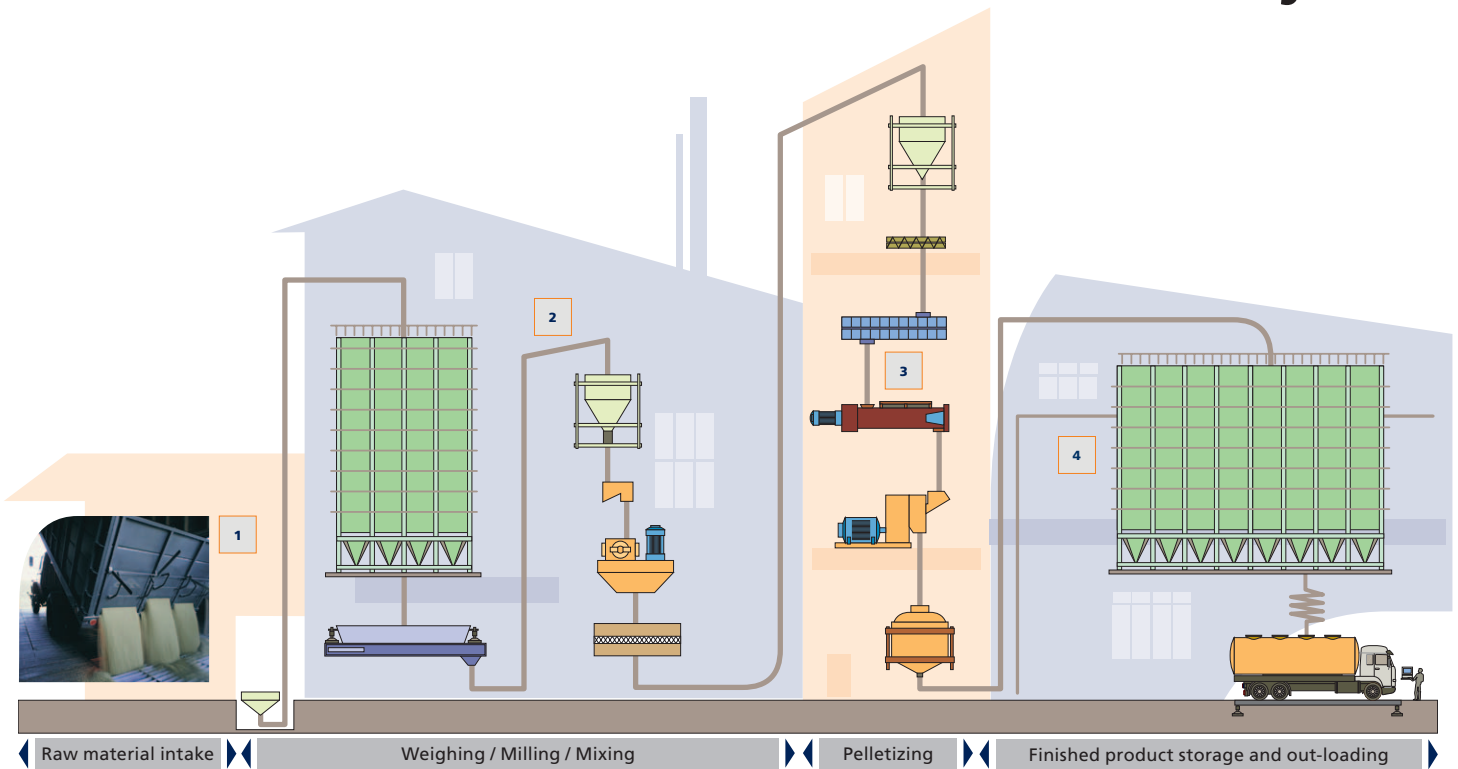


Chemical Analysis in the Feed Industry



Solutions for every stage of feed production

Accurate Quality Control of feed cuts costs

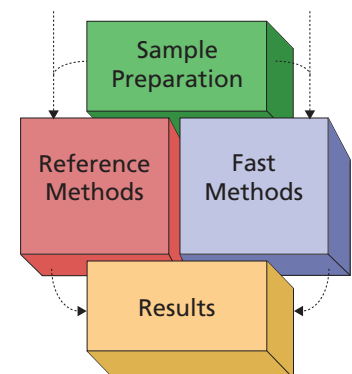
All around the world today, government bodies and consumers alike are increasingly demanding higher standards in all aspects of feed production. At the same time you need continued profitability. By ensuring high grade analysis of the raw material in the warehouse and at the production line you more closely match specifications saving expensive ingredients and thereby giving you improved profit. Analyses for labelling as well as storage of the finished products are requested both by legislation and your customers. Whether this quality control is performed in house or by an external analysis laboratory, you need to be able to rely on the results.

Chemical Analysis (CA) systems are typically located in the Quality Control laboratory, for labelling or validation/updates of NIT/NIR calibrations. CA systems can also be found in the R&D laboratory for nutritional and least cost formulation development work.

Your route to quality control

FOSS provides you with two major routes to accurate and reproducible results. The first route comprises radically improved Kjeldahl and Soxhlet wet chemistry reference methods. They can be used as independent laboratory systems for providing reliable results based on wet chemistry analysis.

The second route comprises systems based primarily on near-infrared reflectance and transmission (NIR/NIT) spectroscopy – fast methods that provide almost immediate results with proven precision. Here the wet chemistry solutions are used to create valid calibrations for NIT/NIR systems.



Reference Analysis Solutions in the Feed Industry

Whether you need a complete range of high capacity analytical solutions for reference chemistries or a small, economical solution for validation of your NIR equations FOSS has a solution for you.



Sample Preparation

FOSS provides tailored sample preparation equipment for all types of samples analysed in the feed production chain, such as raw material, forage samples and finished pelleted feed. The choice of sample preparation equipment depends on both the sample composition and the type of analysis carried out.

- Knifetec™ for high-moisture, high-fat and fibrous samples
- Cyclotec™ for solid samples requiring uniform particle size
- Cemotec™ for grinding solid samples without moisture loss
- Homogenizer for larger samples



Crude and Detergent Fibre Analysis

The Fibertec™ and FiberCap Systems are specifically designed for the determination of crude and detergent fibre, such as Neutral and Acid detergent fibre and Acid detergent Lignin.

- The Fibertec systems range from manual to semiautomated, all with batch handling of 6 samples and no sample transferral steps.
- The FiberCap is a low investment cost manual system, where up to 6 batches of 6 or 18 samples can be analysed in parallel, giving 36 to 108 finished fibre extractions simultaneously.



Kjeldahl Protein/Nitrogen Analysis

FOSS provides the total solution for Kjeldahl Protein and Nitrogen analysis in feed:

- Tecator™ Digestion systems, designed for simultaneous, manual or automatic batch digestion of 8 or 20 samples.
- Kjeltec™ Distilling Systems, from semi-automated to fully automated systems for Kjeldahl protein/nitrogen analysis.
- The Kjeltec Distilling Systems are also used for other distillation methods in feed analysis, such as Ammonia in silage.



Crude and Total Fat Analysis

The Soxtec™ Systems are the fastest on the market for automated solvent extraction of fat in raw materials, finished feeds and many more.

- Crude fat, determined using closed loop solvent extraction in a 6-place system, manual or semiautomated.
- Total Fat, where the preparatory acid hydrolysis step is conveniently carried out using the SoxCap™ system. A manual 6 place system with batch operation, offering a procedure without sample transfer.

Overview of FOSS Chemical Analysis solutions for Feed

	Kjeltec™	Digestor + Kjeltec™	Soxtec™	Soxtec™ + SoxCap™	Fibertec™ + FiberCap	Mills
Protein		✓				✓
Nitrogen		✓				✓
Free Ammonia	✓					✓
Crude Fat			✓			✓
Total Fat				✓		✓
Crude Fibre					✓	✓
NDF					✓	✓
ADF					✓	✓
ADL					✓	✓

In line with world wide standards

FOSS works closely with recognised official and regulatory bodies such as ISO and AOAC to ensure that our systems closely follow official methods and regulations. By using an officially approved method you will:

- get results that are valid on a world wide basis
 - save a lot of time thanks to little or no 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
- ✓ **EN ISO 5983- 2 (AOAC 2001:11)** which applies to Protein/Nitrogen in Animal Feeds, Cereals, Forages, Oil seeds, Pet Foods and Fish Meal describes a method to which FOSS Kjeltec™ and Digestion systems comply
This standard is also the reference method for the determination of nitrogen/protein by:
 - Indirect spectroscopic determinations (NIR/NIT)
 - Dumas combustion method (ISO 16634)
 - ✓ **EN ISO 6865 (AOAC 978.10)** which refers to Analysis of Crude Fibre (CF) in Feed, describes an analytical procedure based on the crucible or Fibertec™ method.
 - ✓ **EN ISO 16472 (AOAC 2002:04)** which refer to Analysis of Neutral Detergent Fibre (NDF) in Feed, describes an analytical procedure based on the crucible or Fibertec™ method.
 - ✓ **EN ISO 13906 (AOAC 973.18)** which refers to the Analysis of Acid Detergent Fibre (ADF) and Lignin (ADL) in Feed, describes an analytical procedure based on the crucible or Fibertec™ method.
 - ✓ **ISO 11085** which applies to Free and Total Fat in Cereals and Animal Feeds using Petroleum Ether describes a method to which Soxtec™ systems comply.
In addition during the collaborative study which led to this new ISO 11085 standard, a parallel evaluation was undertaken by FOSS using the SoxCap™ system for Total Fat. A statistical analysis reveals that there is no difference in the values between ISO 11085 and SoxCap™ in 98 of 100 cases.
 - ✓ **AOAC 2003:06** which applies to Free Fat in Animal Feeds, Cereal Grain and Forage using Hexane, describes a method to which Soxtec™ systems comply.

More than an instrument

With a FOSS chemical analysis solution you get more than just an instrument. The FossCare™ Support Plan (available at most of our sales offices and distributors) contributes significantly to the total life-cycle economy of your operation and helps you maintain your FOSS systems to maximize uptime at a minimum cost.

Under the FossCare umbrella we offer customised solutions to meet your every need. Should you need it, trained personnel will be on-hand to provide support no matter where you are located.

SUPPORT PLAN FEATURES	PLATINUM	GOLD	SILVER	BRONZE
DURATION	1-2 years	1-2 years	1-2 years	1-2 years
SCHEDULED PREVENTIVE MAINTENANCE VISITS*	2	2	2	1
ADDITIONAL PREVENTIVE MAINTENANCE VISITS	Optional	Optional	Optional	
ON-SITE RESPONSE TIME**	24h	48h	72h	Priority
TRAVEL EXPENSES	✓	✓		
ON-SITE LABOUR FOR UNPLANNED VISITS	✓	✓		
SERVICE SPARES FOR REPAIRS	✓			
PHONE SUPPORT (BUSINESS HOURS)	Unlimited	6h	4h	3h
SOFTWARE MAINTENANCE SUPPORT	✓	✓	✓	✓
INSTRUMENT SAFETY CHECKS	✓	✓	✓	✓

* Subject to instrument type ** Subject to exceptions

Application Support

As a user of FOSS solutions you gain access to a wealth of applications. If you are having difficulty with the instrument or a particular application we have a team of specialists to assist you. We also offer an analytical service at our Application Laboratory, where we analyse your samples and recommend the most appropriate application.

Original consumables for a perfect performance

Our consumables, such as tubes, catalyst tablets, thimbles and crucibles are produced precisely to function as integral parts of our units. When you have a lot at stake in daily operations, it doesn't pay to cut corners.

The advantage of one

You'll find a partnership with us rewarding. Our team of application and technical specialists is

ready to help you, and you also gain long-term support from our Customer Care Programs. Establishing a partnership with one equipment supplier can help you control costs and increase productivity and profitability.

Serving the Feed Industry for more than 50 years

Listening to the feed industry and responding to its needs for over 50 years have played a major role in FOSS becoming the world leader in supplying analysers, support and knowledge for agricultural quality control.

Contact FOSS to find out how we can help you achieve more efficient and profitable feed production, or visit our website at www.foss.dk/analytical-laboratories to order a free copy of our interactive product guide CD and other support material.

FOSS

FOSS
Slangerupgade 69
DK-3400 Hilleroed
Denmark

Tel.: +45 7010 3370
Fax: +45 7010 3371

info@foss.dk
www.foss.dk

