



# Solutions for Feed

Wet Chemistry Analyses for Producers of Animal and Fish Feed

## Crude Protein

OP SIS LiquidLINE has solutions for determination of Kjeldahl (TKN) protein following standard methods.

The samples are digested with sulphuric acid to convert nitrogen into ammonium sulphate. The samples are further distilled by steam distillation followed by titration.

Examples: Protein in animal feed stuff, forage (plant tissue), grain, oilseeds, pet food and protein in residues from other production processes such as palm kernel cake.

### Our Solution

- The KjelROC Digestor Advanced motor lift makes the digestion efficient and saves valuable operator time.
- KjelROC Analyzer with integrated Titration offers titration with low relative standard deviation and wireless communication saving time and costs.

### Standards

ISO 1871:2009, ISO 5983-2:2009  
AOAC 2011.11  
AOAC 954.01  
AOAC 976.06  
AOAC 984.13

### Application Notes

LA1000 Application Guide Kjeldahl  
LA1011 Determ. of nitrogen in pet food  
Further Notes on request

## Total Fat

OP SIS LiquidLINE provides instruments to determine Total Fat according to standard methods.

The sample is hydrolysed and thereafter extracted in hot solvents. Calculation of total fat content follows after the extract has been dried to a constant weight.

Examples: Fat in Cattle, Cat, Dog, Horse, Chicken, Rabbit and Pig feed

### Our Solution

- The HydROC hydrolysis unit offers a unique filter technology that saves time and reduces the risk of errors when moving samples between hydrolysis and extraction.
- The SoxROC extraction unit with batch handling and full automation facilitates the extraction.

### Standards

98/64/EC  
ISO 6492  
ISO/FDIS 11085

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
LA1005, Extr. of Total Fat in Petfood  
Further Notes on request

## Crude Fat

OP SIS LiquidLINE provides instruments to determine Crude Fat with Hot Solvent extraction.

The sample is prepared and thereafter extracted in hot solvents. Calculation of fat content follows after the extract has been dried to a constant weight.

Examples: Fat in pet food, feeds, cereal grains and forages. Fat in fish meals.

### Our Solution

- The SoxROC extraction unit with batch handling and full automation facilitates the extraction.
- The instrument provides significant time savings versus cold extraction and a recovery of over 90% of used solvents.

### Standards

AOAC 920.39  
AOAC 948.15, AOAC 948.16  
AOAC 954.02  
AOAC 2003.05, AOAC 2003.06  
ISO/FDIS 11085

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
Further Notes on request

## Oil from distilled grains waste

When producing ethanol there are waste products from the distilled grains. The waste from this process is typically sold as cattle feed whereas the price is based on the oil content of the waste. OPSIS LiquidLINE provides instruments to extract oil from this waste.

### Our Solution

- The SoxROC extraction unit with batch handling and full automation facilitates the extraction.
- The instrument provides significant time savings versus cold extraction and a recovery of over 90% of used solvents.

### Standards

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### Application Notes

LA1002, Appl. Guide Solvent Extraction  
Further Notes on request

## Crude Fiber

OP SIS LiquidLINE has instruments to determine Crude Fiber (CF) according to the Weende reference method. Determination of fiber in animal feed, forage, oilseeds and pet food among others.

### Our Solution

- The FiberROC Auto and FiberROC Advanced units manages the different steps in the method. Addition of solution, boiling and rinsing is done automatically. Every step is monitored and the operator will be notified when ready.
- The FiberROC Manual unit facilitates manual determination of Crude Fiber, providing an efficient and safe environment.
- Our solutions provides significant time and cost savings compared to the manual method.

### Standards

Weende method for Crude Fiber

### Application Notes

Notes on request

## Detergent Fiber

OP SIS LiquidLINE provides solutions to determine Acid Detergent (ADF), Neutral Detergent (ADF) and Acid Lignin Fiber (ADL) according to the Van Soest method. Determination of detergent fiber in animal feed, forage, oilseeds and pet food among others.

### Our Solution

- The FiberROC Auto and FiberROC Advanced units manages the different steps in the method. Addition of solution, boiling and rinsing is done automatically. Every step is monitored and the operator will be notified when ready.
- FiberROC provides a High throughput, Low operating costs and an Unified solution with LabConnect software.

### Standards

Van Soest method for Acid Detergent (ADF), Neutral Detergent (ADF) and Acid Lignin Fiber (ADL).

### Application Notes

Notes on request

## OP SIS LIQUIDLINE - INNOVATIVE WET CHEMISTRY

OP SIS AB, founded in 1985 in Sweden, took the concept of measuring gases with light and developed it into a commercially viable product. In 2013, we took another step and moved our innovative technology into Wet Chemistry and Liquids.

- AN APPLICATION LABORATORY READY TO ASSIST
- CUSTOMIZED TRAINING AND SUPPORT FROM SWEDEN
- THE LATEST IN MAINTENANCE
- A COMPLETE PORTFOLIO



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