



## Solutions for Food

Wet Chemistry Analyses for Producers of Cereals, Snacks and other Food products

### Crude Protein

OPSIS 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 cereals, sauces, pulses, jams and ready made food

#### Our Solution

- The KjelROC Digestor Advanced motor lift makes the digestion efficient and saves valuable operator time.
- OPSIS LiquidLINE Kjeldahl catalyst tablets and glass tubes ensure stable and reliable results.
- KjelROC Analyzer with integrated Titration offers titration with low relative standard deviation saving time and costs.

#### Standards

ISO 1871:2009, ISO 20483:2006  
ICC standard No. 105/2  
AACC 46-13  
AOAC 945.18B

#### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

### Total Fat

OPSIS 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 cereals, cereal products, potato chips and ready made food

#### 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

ISO/FDIS 11085  
AOAC 996.01

#### Application Notes

LA1002, Appl. Guide Solvent Extraction  
Further Notes on request

### Crude Fat

OPSIS 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 cereals, cereal products, potato chips and ready made food

#### 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

ISO/FDIS 11085

#### Application Notes

LA1002, Appl. Guide Solvent Extraction  
LA1004 Extraction of fat in Potato chips  
Further Notes on request

## Total SO<sub>2</sub>

SO<sub>2</sub> is used as preservative in the food industry but levels need to be controlled in order to produce safe food. OPSIS LiquidLINE has solutions for determination of Total SO<sub>2</sub> with steam distillation, following standard methods. Total sulphur dioxide is liberated by acidic steam distillation and is fixed and oxidized by hydrogen peroxide. The sulphuric acid formed is determined by separate titration, using third party instruments.

Examples: Total SO<sub>2</sub> in dried apricot, shrimps, celery, jams, syrups, sausages and burgers

### Our Solution

- OPSIS LiquidLINE glass tubes ensure stable and reliable results.
- KjelROC Distillation unit with programming capabilities makes distillation easy. A special adaption kit for SO<sub>2</sub> determination can be ordered.

### Standards

AOAC 962.16

AOAC 990.28

### Application Notes

LA1000 Application Guide Kjeldahl

Further Notes on request



Nguan Chiang Food Industry is located in Samut Prakan, Thailand. They are a seasoning sauce manufacturer using an original family recipe. They make a range of Chinese mushroom light soy sauces to premium soy sauces, with a variety of flavours. They use OPSIS LiquidLINE KjelROC Digester solution in their wet chemistry laboratory.



## 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. We can offer:

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

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