



# Solutions for Beer

Wet Chemistry Analyses for Malt and Beer producers

## 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 compressed or granular yeast, Malt, Wort, Barley and Beer

### Our Solution

- The KjelROC Digester 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

Analytica-EBC 4.3.1/4.9.1/3.3.1/9.9.1  
AOAC 920.87/920.53  
AOAC 950.10/962.10/950.09  
Ronalds; J. Sci. Fd. Agric. 1974, 25, 179-185

### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

## Crude Fat in Barley

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: Extraction of Fat in Barley

### 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 6492  
AOAC 920.39

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
Further Notes on request

## Alcohol in Beer

OPSIS LiquidLINE has solutions to help when determining Alcohol in Beer. After steam distillation the Alcohol is determined by measuring the density of the distillate.

Examples: Alcohol in ready Beer

### Our Solution

- KjelROC Auto or Manual Distillation unit with programming capabilities make distillation easy.

### Standards

Analytica-EBC 9.2.1  
EEC 2870

### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

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

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 Beer

### 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

### Application Notes

LA1000 Application Guide Kjeldahl

Further Notes on request



The Danish Malting Group (DMG) is a major producer of malt in Denmark and Poland. They are using a set-up of OPSIS LiquidLINE instruments at their laboratory in Poland. Using the wireless features of the KjelROC extensively.



## OPSIS LIQUIDLINE - INNOVATIVE WET CHEMISTRY

OPSIS 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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