



# Solutions for Chocolate

Wet Chemistry Analyses for Producers of Chocolate and Cacao products

## 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. The nitrogen content is multiplied by a standard factor to obtain the protein content.

Examples: Protein in chocolate, milk chocolate and cacao products

### Our Solution

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

### Standards

AOAC 939.02  
AOAC 970.22

### Application Notes

LA1000 Application Guide Kjeldahl  
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 cacao products with or without milk ingredients. Fat in products prepared by cooking with sugar and H<sub>2</sub>O, chocolate, chocolate liquor etc.

### 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

AOAC 963.15

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
LA1008, Ext. of total fat in Chocolate  
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 cacao products with or without milk ingredients. Fat in products prepared by cooking with sugar and H<sub>2</sub>O, chocolate, chocolate liquor etc.

### 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 963.15

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
LA1007, Ext. of fat in Chocolate  
Further Notes on request