



# Industrial Solutions

Wet Chemistry Analyses for Electronics, Car, Paper, Textiles and Chemical industries.  
Analyses of Petroleum and Mineral products.

## Nitrogen(N) in Coal, Leather, Crude and Refined Oil

OP SIS LiquidLINE has solutions for determination of the nitrogen content in coal and petroleum oil using a variant of the Kjeldahl process.

A known mass of the sample is digested with a mixture of sulphuric acid, distilled followed by a titration.

### Our Solution

- The KjelROC Digestor Advanced motor lift makes the digestion efficient.
- 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 saving time and costs.

### Standards

ISO 333  
ISO 3332  
ISO 5397

### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

## Ammonia (NH<sub>3</sub>), Urea-N, Ammonium (NH<sub>4</sub>)

Ammonia, sometimes called free ammonia, can be determined with steam distillation followed by titration.

Ammonium, fixed ammonia, can be determined by adding alkali prior to the distillation.

### Our Solution

- KjelROC Analyzer with integrated Titration offers titration with low relative standard deviation and wireless communication saving time and costs.

### Standards

ISO 1592

### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

## Formaldehyde

OP SIS LiquidLINE has solutions to help when determining Formaldehyde in industrial production. Spectrophotometric measurement is used after steam distillation. OP SIS LiquidLINE instrument can be used for the distillation.

Examples: Formaldehyde in paints, textiles and household products.

### Our Solution

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

### Standards

Based on ISO 14184-1  
Regional standards Germany and Japan

### Application Notes

LA1000 Application Guide Kjeldahl  
Further Notes on request

## Extraction to determine RoHS, plasticisers, resins, oil and other products

OP SIS LiquidLINE provides instruments for hot solvent extractions. This can also be a sample preparation for further analysis with instruments such as GC or LC.

### 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.
- The SoxROC is designed for industrial use with Borosilicate glass and PTFE material. Please order optional PTFE sealing rings.

### Standards

SLC 4:1966 I.U.C/4  
DIN 53 306  
BS 3477 (withdrawn)

### Application Notes

LA1002, Appl. Guide Solvent Extraction  
Further Notes on request

### Examples:

- Extraction of core material before further analyses, common in petroleum exploration.
- Extraction of mineral oil from rocks
- Extraction from Iron and other mineral powders
- Extraction of resins from Tar, used in road construction
- Extraction of explosives and propellants to determine the content of nitroglycerine, nitrocellulose and similar compounds.
- Extraction of paraffin and surfactant from detergents
- Extraction of plasticisers and additives in plastic parts used in car production.
- Extraction of plastics and resins in electronic devices
- Extraction of Hazardous Substances (RoHS) in electrical and electronic equipment
  
- Extraction from Wood Chips and Paper Pulp
- Extraction of Resins From Paper Pulp
  
- Extractable matter in Leather
- Determination of oils, fats and waxes in cotton using extraction
- Extraction of Finishing Oils from Textiles and Synthetic Fibers

## 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



OP SIS AB, Box 244  
SE-244 02 Furulund Sweden  
Telephone +46 46 72 25 00  
Telefax +46 46 72 25 01  
E-mail info@opsis.se  
www.liquidline.se

LB 1018  
2023 07