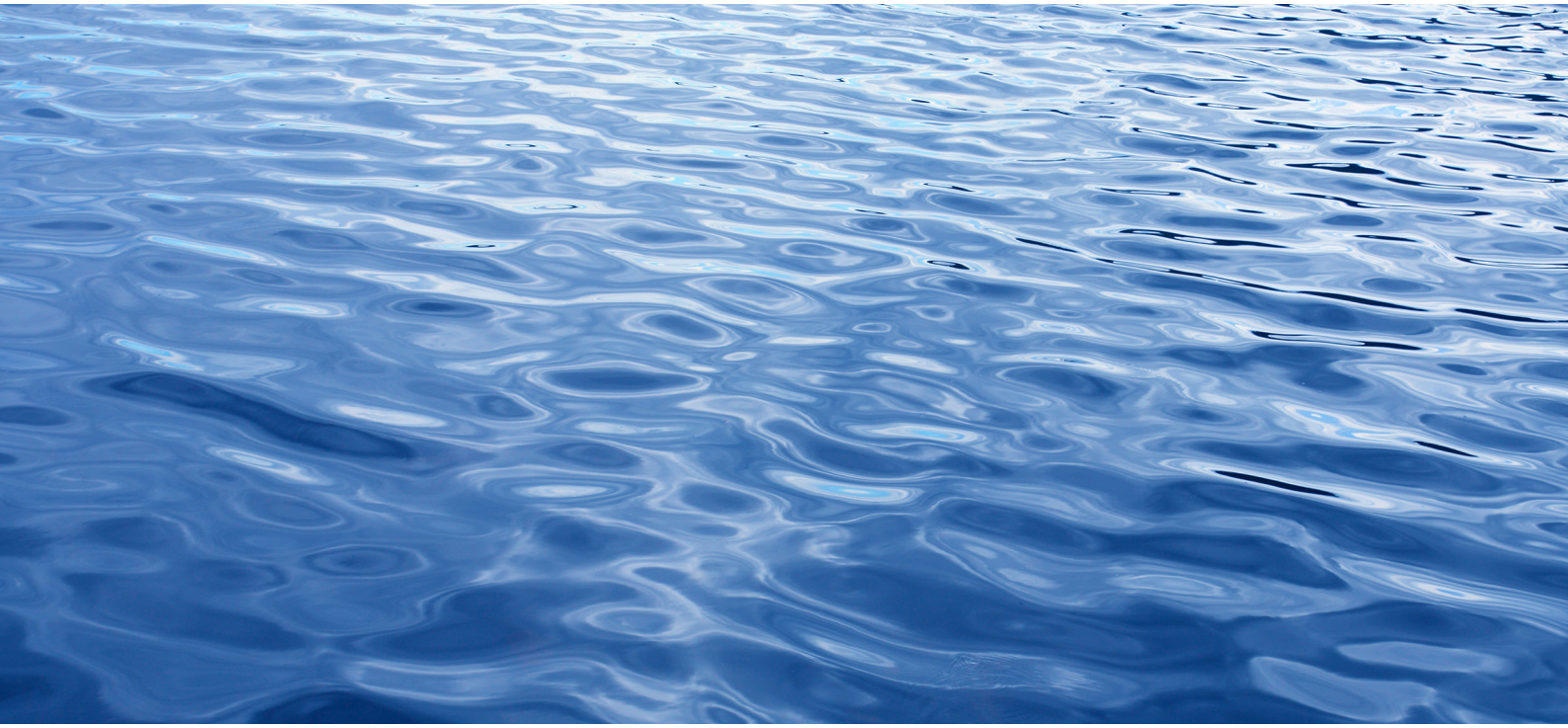
OPSIS®
LIQUIDLINE®



Solutions for Water and Soil

Wet Chemistry Analyses for laboratories working with Environmental analyses

Total Kjeldahl Nitrogen (TKN)

OPSIS LiquidLINE has solutions for determination of Total Nitrogen (TKN). The samples are digested with sulphuric acid to convert organic nitrogen into ammonium sulphate. The samples are further distilled by steam distillation followed by titration. Reducing agents, such as salicylic acid or Devarda's alloy, might also be added in digestion step.
Examples: Total Nitrogen in drinking, ground and surface water. Total Nitrogen in domestic and industrial wastes.

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 saving time and costs

Standards

EPA 351.2, EPA 351.3, EPA 1687
AOAC 973.48, ISO 5663
DIN 32 645, NF EN 25663
ESS Method 230.1
PN-75-C-04576-17

Application Notes

LA1000 Application Guide Kjeldahl
LA1019 Determination of N in water
LA1023 Determination of N in soil
Further Notes on request

Total Oxidised Nitrogen (T.O.N)

Total oxidised Nitrogen, Nitrite (NO_2) and Nitrate (NO_3), can be determined with OPSIS LiquidLINE instruments. Determination is done in two steps, first to determine free and fixed ammonia and second step with Devarda's Alloy.

Our Solution

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

Standards

AOAC 892.01

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Ammonia (NH_3) and Ammonium (NH_4)

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.
Examples: Ammonium in raw, potable and waste water

Our Solution

- KjelROC Analyzer with integrated Titration offers titration

Standards

EPA 350.2
ISO 5664
DIN 38406-E5-2

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Detection of Low Levels of Nitrogen

Kjeldahl analysis in waste water requires precision and detection of very low Nitrogen levels. OPSIS LiquidLINE has developed a KjelROC Analyzer with a very low Detection Quantification (LOQ) limit.
Please consult your OPSIS LiquidLINE representative to get more information regarding the KjelROC titration technology and our research in LOD/LOQ.

White Papers and Reports

LW1000 Optimized Kjeldahl Titration White Paper
LTE1036 Determination of LOD and LOQ
LTE1032 Verification of KjelROC Analyzer Relative Standard Deviation

Total Cyanide

OPSIS LiquidLINE has solutions to help when determining Total Cyanide. After distillation the test sample is analyzed according to specific application by titration.
Examples: Determination of cyanide in drinking, surface and saline waters, domestic and industrial wastes.

Our Solution

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

Standards

EPA 335.2
ISO 6703

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Total Petroleum Hydrocarbons (TPH)

Total petroleum hydrocarbons (TPH) are a family of compounds made from crude oil and are found in soils and water. Exposure to TPH can affect human health and, therefore many laboratories around the world are analyzing TPH levels in the environment.
OPSIS LiquidLINE provides solutions for extraction of TPH from soil and sediment samples. The samples are then further analysed in a GC or similar instrument.

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

EPA 3541
ISO 16703
DIN 14039

Application Notes

LA1002, Appl. Guide Solvent Extraction
Further Notes on request

Toxins and Pesticides

Toxins such as Dioxins and polychlorinated biphenyl (PCB) can be determined by extraction and subsequent analysis. The subsequent analysis is done with GC/MS, GC or HPCL analysis.
OPSIS LiquidLINE provides solutions for hot solvent extraction.
Examples: PCB's, Dioxins and other toxins in food, soil and water. Pesticide residues in soil and water.

Our Solution

— The SoxROC extraction unit with batch handling and full automation facilitates the extraction
— Extra large thimbles for large samples, necessary for GC/MS analysis
— The instrument provides significant time savings versus cold extraction and a recovery of over 90% of used solvents

Standards

EPA 3541, ISO 16215, EU 1881/2011

Application Notes

LA1002, Appl. Guide Solvent Extraction
LA1020, Extraction of SVOC in Food
LA1021, Extraction of SVOC/PAH in Soil
Further Notes on request

Phosphate

OPSIS LiquidLINE has solutions for determination of total phosphorus in drinking, surface and waste waters.
The samples are first digested and thereafter analyzed according to photometric method.

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.

Standards

APHA Methods 4500-P
ESS Method 230.1

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Volatile Fatty Acids

OPSIS LiquidLINE has solutions to help when determining Volatile Acids in Soil and Sludge. After steam distillation the test sample is analyzed by potentiometric titration, spectrophotometric or gas chromatographic methods.
Examples: Determination of cyanide in drinking, surface and saline waters, domestic and industrial wastes.

Our Solution

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

Standards

PN-75/C-04616

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Oil, Lubricants and Grease

Standard Methods for Examination of Water and Wastewater provides for the use of three test procedures to determine oil and grease concentrations in wastewater samples.
OPSIS LiquidLINE provides solutions for hot solvent extraction.
Examples: Extraction of oil, lubricants and grease from wastewater and sludge.

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

APHA 5520
EPA 1664
EPA 9071B

Application Notes

LA1002, Appl. Guide Solvent Extraction
Further Notes on request

Phenol

Phenol can cause problems in the wastewater treatment process, making phenol determination a necessary step in the wastewater treatment process.
OPSIS LiquidLINE has solutions to help when determining Phenol. After a first distillation the test samples are analyzed according to specific application by direct colorimetric method.
Examples: Determination of phenolic compounds in drinking, surface and saline waters. Phenolic compounds in domestic and industrial wastes.

Our Solution

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

Standards

EPA 420.1
EPA 9065
ISO 6439

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

Formaldehyde

OPSIS LiquidLINE has solutions to help when determing Formaldehyde in water. Spectrophotometrical measurement is used after steam distillation. OPSIS LiquidLINE instrument can be used for the distillation.

Our Solution

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

Standards

NEMI D6303
AOAC 964.21

Application Notes

LA1000 Application Guide Kjeldahl
Further Notes on request

SGS

SGS Analytics, a major commercial laboratory is using SoxROC for Dioxin determinations according to ISO and european standards.

The WIOŚ, Voivodship Inspectorate for Environmental Protection Kielce, is part of the European union protection of the environment. They are using an KjelROC Analyzer for their analyses

With more than 35 years of experience in analysis of agriculture and environmental the LCA laboratories in La Rochelle, France, are well suited to look at the best technology. The group consists of five sites and the site in La Rochelle have bought and installed two complete Digestion systems with KjelROC Digestors and KjelROC Scrubbers.

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