

OBTAINED RESULTS

Contract 85 CP / I / 13.09.2007

EDILAM

Purchased Equipments:

- 1. Inductively coupled plasma atomic emission spectrometer, ICP-AES, Optima 5300 DV Perkin Elmer**



Characteristics

- Simultaneous detection spectrometer for all elements from sample, polychromator type spectrometer
- Purgeable optic system
- Wavelength range: 165 ... 780 nm
- Dual view detection: axial and radial
- RF Generator at 40 MHz
- Plasma ignition controlled by computer
- Three channel peristaltic pump, variable speed between 0.5 ... 4 ml/min
- Operating temperature: 15 ... 35°C
- ICP-AES soft, that control the instrument parameters: gas flow, RF power
- Autosampler controlled by soft
- Ultrasonic Nebulizer

2. UV-VIS Spectrophotometer Lambda 25 Perkin Elmer



Characteristics

- Optic: double-beam
- Spectral range : 190 - 1000 nm
- Sources: Deuterium lamp for UV and tungsten lamp for VIS range
- Measuring range: -6.000 A +6.000 A; 0 la 300% T
- Measuring types: A, %T, %R.
- Reproducibility: +/- 0.0005 A for all measuring range, +/- 0.05%T for all measuring range
- Precision: +/- 0.001A for all measuring rang
- Option for scan spectra with selectable speed
- Wavelength repeatability: +/- 0.05 nm.
- Slit: 1 nm.
- Wavelength accuracy: ± 0.1 nm.
- Absorbance repeatability: +/- 0.0005 A at 1A.
- Software for instrument controll and data procesing.

Absorbable organic halides analyzer (AOX) MultiX 2000, Analytic Jena



Characteristics

- Organic halides determination based on absorption from waters on active carbon, followed by the combustion in oxygen flow, and argent metric titration of halide ions
- Measuring range: 0,1 – 250 $\mu\text{g/l}$
- Vertical Owen
- Coulometric cell with combined electrode
- Particle size in sample up to 100 μm
- Only an electrolyte solution for all measuring range

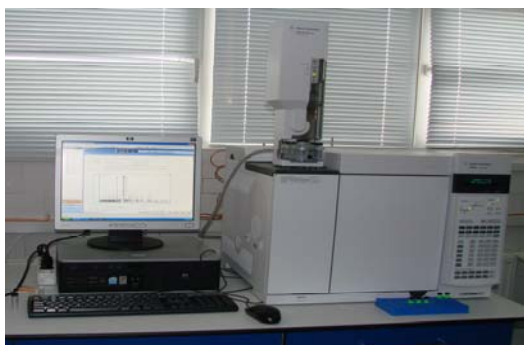
Total Organic Carbon Analyzer MultiN/C 2100 S Analytic Jena



Characteristics

- Types of samples : liquid, solid
- Simultaneous determinations of TOC and TN using a single electrolyte
- Method of determination –catalytic oxidation at 950 C , e NDIR detection for carbon with 3 measuring channels and one reference channel.
- Types of analysis : TC, TOC, TN , NPOC, POC
- Concentration range TC/ TOC/ NPOC: 0 – 30.000 mg/l
TN : 0 – 200 mg/l
- Times of analysis : 3-5 minutes

Gas chromatograph with FID detector type 7890 A Agilent Technologies



Characteristics

- Flow and pressure electronic control
- System controlled by soft

Columns Owen:

- Temperature range: 4 °C over ambient up to 450°C
- Temperature ramp rate: 100 °C/min
- Owen ramps / plateaus: 20/21
- Ambient rejection : <0.01 °C per 1 °C
- Flame Ionization Detector optimized for capillary columns, with signal auto scale
- Dual Injector (Split-Splitless)

- Pressure accuracy $\pm 2\%$ for all range
- Software for gas chromatography
- Retention Time Repeatability $< 0,001$ minutes
- Peak Area Repeatability : $< 1\%$ RSD

Mercury analyzer by AAS, Hydra-C, Teledyne



Characteristics

- Principle: heats the sample to release its mercury, capturing the mercury vapor as it evolves on a gold trap. Subsequent heating of the trap releases the mercury for measurement by atomic absorption.
- Radiation source: Hg lamp
- Wavelength: 253.65 nm
- Detection limits below 0.005 ng Hg
- Analyze sample: liquid and solid
- Maximum sample weight: 500 mg
- Working ranges 0.05 ng – 600 ng Hg
- Carrier gas: oxygen
- Repeatability $< 1.5\%$
- Preconcentration capability 10 times maximum.
- Autosampler for solids or liquids.

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Access

Access: Monday – Friday, between 8.00 – 16.00 hours

The access is permitted according the conventions with the partners, and analyses customers respectively.

Services offered using the new equipments:

- Quantitative determination with detection limits of ppb for 70 elements from periodic table from liquid and solid sample
- Quantitative determination of some inorganic pollutants from water, soil and air by spectrophotometry (cyanide, ammonium, nitrate, nitrite, sulfate, sulphur dioxide, etc);
- Analysis of the (AOX) from liquids wastes;
- Analysis of (TOC), (TC), (TIC) and (TN) from liquid and solid sample;
- Analysis of Hg contents directly from solid or liquid sample without sample digestion, DL in range of ng;
- Analysis of organic pollutants (BETX, TPH, etc.) from environmental samples by gas chromatography