



RWESCK LABORATORIES

BROCHURE

RWESCK LABORATORIES

ENVIRONMENTAL LAB || WATER QUALITY LAB || HYDRAULIC LAB ||
WATER RESOURCES LAB

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Introduction

RWESCK LABORATORIES

ENVIRONMENTAL LAB || HYDRAULIC LAB || WATER QUALITY
LAB || WATER RESOURCES LAB

WATER QUALITY LABORATORY

The RWESCK Water Quality Laboratory is equipped with all of the necessary equipment and consumables to meet the demands of students, water engineers, and managers with knowledge of water resources, hydrology, hydraulics, and environmental management. Water quality is assessed using physical, chemical, bacteriological, and microscopic characteristics. Our facility's results are repeatable under similar or identical testing conditions; thus, our clients are always pleased with our services.

Our Services

1. Drinking/portable water analysis
2. Wastewater analysis
3. Testing of treatment units
4. Mobile Laboratory kits

ENVIRONMENTAL QUALITY LABORATORY

To meet environmental and monitoring demands, the Environmental Quality Laboratory conducts field sampling and analyses of a variety of materials.

Our services

1. Nanomaterials, soil, biosolids, compost analysis
2. Solid waste and wastewater analysis
3. Food and feed nutrients analysis
4. Biogas analysis

HYDRAULICS AND WATER RESOURCES LABORATORIES

The following services are provided by the hydraulics and water resources laboratory:

5. Groundwater measurement
6. Stream Flow measurement
7. Hydraulic studies
8. Borehole drilling and pumping tests

SCANNING ELECTRON MICROSCOPE



The Scanning Electron Microscope (SEM) EVO MA 15 (Serial number: 8003014101) a member of the EVO family employs high performance microscopy with tungsten filament as electron emission source and an intuitive, user-friendly interface. The distinct merits of SEM are: better resolution, greater depth of field and the ability to carry out X-ray microanalysis. The SEM is optimized for routine microanalysis by Energy Dispersive Spectroscopy (EDS) on the SmartEDX application to acquire spatially resolved elemental chemistry information from sample surfaces.

Typical Tasks and Applications

1. Morphology, mineralogy and compositional analysis of geological samples
2. Morphological and compositional analysis of raw chemicals and active ingredients
3. Visual inspection of electronic components (Quality analysis / quality control)
4. Characterization of both conductive and non-conductive material samples for research purposes.

X-RAY DIFFRACTOMETER



The D2 PHASER is easy to operate and has a very small footprint. It is a high-quality XRD system with an innovative high-end design that works without any external components, i.e., chiller, computer system, display, etc. This system needs only a mains power supply between 100 V – 240 V (50/60 Hz) and a footprint of approximately 50cm x 60 cm. The D2 PHASER opens the door to modern XRD investigations with fast, simple, efficient and high data quality attributes. Applicable fields include but not limited to Cement and raw materials; Minerals and mining; Geology and exploration; Ceramics; Chemistry and catalysts; Research and education; Pharmaceuticals and Environment.

Typical Tasks and Applications

1. Qualitative and semi-quantitative phase analysis and identification
2. Determination of degree of crystallinity
3. Determination of crystal properties as crystallite size and lattice strain
4. Determination of crystal structure

ATOMIC ABSORPTION SPECTROPHOTOMETER (FLAME/ GRAPHITE FURNACE INTEGRATED)



The Angstrom Atomic Absorption Spectrophotometer with model number AAS500, is a high performance, high reliability spectroscopic instrument, integrated with both flame and graphite furnace atomizers. Tandem optical path structure ensures the switching between the flame and graphite furnace mode is free of external manipulations thus eliminating deviations due to mechanical switching.

Currently available lamps are: Mg, Cd, Cr, Fe, Pb, Mn, Se, Zn, Li, B, Ca, Ti

Typical Tasks and Applications

Elemental analysis

MICROWAVE DIGESTION/EXTRACTION SYSTEM



The Sineo Jupiter-B (serial number: JP570) Microwave Digestion/Extraction System is a high throughput closed microwave digestion/extraction workstation which fulfills the requirements of different samples' digestion/extraction processing with up to 12 vessels high-throughput processing capacity.

Typical Tasks and Applications

Food and drug, cosmetics, agricultural products, aquatic products, biological tissues, various types of feed, energy and petrochemical, geology and mineral resources, environmental resources (air, water, soil), metals, alloys, ceramics, medicine, domestic wastes.

GAS CHROMATOGRAPH MASS SPECTROMETER (GCMS)



The Angstrom Gas Chromatograph Mass Spectrometer (GCMS) is a hybrid analytical instrument used for qualitative and quantitative analyses. The instrument couples the separation capabilities of GC with the detection properties of MS to provide a higher efficiency of sample analyses. While GC can separate volatile components in a sample, MS helps fragment the components and identify them on the basis of their mass.

Typical Tasks and Applications

- Environmental pollutants - dibenzofurans, dioxins, herbicides, sulfur, pesticides, phenols, and chlorophenols in air, soil, and water
- Food and Fragrance Analysis - Aromatic compounds such as fatty acids, esters, aldehydes, alcohols, and terpenes present in food and beverages {detect spoilage or contamination of food}
- Pharmaceutical Applications - identification of impurities in active pharmaceutical ingredients; synthesis and characterization of compounds and in pharmaceutical biotechnology.
- Forensic Applications - identify poisons and steroids in biological specimens
- Biological Analysis - detect narcotics, barbiturates, alcohols, and drugs such as anticonvulsants, anesthetics, antihistamines, sedative hypnotics, and antiepileptic drugs

FLAME PHOTOMETER



The Biobase Flame Photometer (model: FP640) is an instrument that utilizes flame to qualitatively and quantitatively measure the concentration inorganic alkali metals or alkaline earth metals (specifically K, Na, Ca, Li, Ba) in samples.

Typical Tasks and Applications

- Testing cement, glass, ceramics, refractory materials and other construction materials
- Testing fertilizers and soil
- Testing products of mining, petroleum, metallurgy, and chemical products
- Testing pharmaceutical, beverages and other food
- Testing Municipal solid waste (MSW)
- Various laboratory tests for scientific research, health, education and other fields.

DOUBLE BEAM SPECTROPHOTOMETER (UV/VIS)



Basic functions included in the Biobase Double Beam Spectrophotometer (UV/Vis) are photometry, quantitative, kinetics, multi-wavelength, scanning and biological analyses with a wavelength range of 190 ~ 1100nm.

Typical Tasks and Applications

- Quality control of raw materials and finished goods
- Color measurements and color matching
- Analysis of nutrients in water, food, and agriculture
- Characterization of unknown or newly synthesized compounds
- Monitoring kinetics of chemical or biological reactions
- DNA and protein quantification

SPECTROPHOTOMETER (UV/VIS)

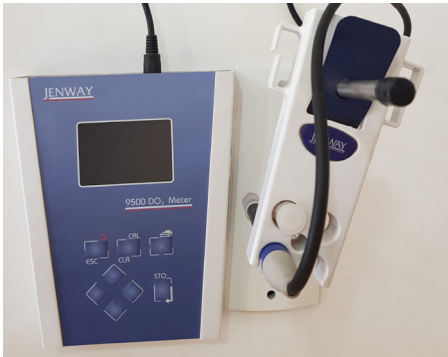


The DR 6000 spectrophotometer provides digital readouts of concentration, absorbance and percent transmittance from the following programs and operating modes: Stored programs (pre-installed tests), Barcode Programs, Single & Multi Wavelength, Wavelength Scan and Time course. The stored programs have over 250 pre-programmed methods including the most common water and environmental testing methods.

Typical Tasks and Applications

- Water Quality
- Environmental Quality
- Biotechnology

DISSOLVED OXYGEN METER



The 9500 is a fully specified DO₂/Temperature meter that includes full support for the B.O.D. 5-day test protocol.

CONDUCTIVITY METER



Ideally suited for conductivity measurements.

Typical Tasks and Applications

Aqueous samples with mid to high conductivity

GAS DETECTOR



Simultaneous and continuous measurement of up to five gases
Applications - detection of oxygen, toxic and combustible gases and vapors

MANIFOLDS VACUUM FILTRATION



Convenient single vacuum pump operated filtration setup with multi-branch manifold filter regulated by individual control valve.

Typical Tasks and Applications

- Water quality analysis
- Sanitation test
- Research

TINTOMETER



Flexible thermoreactor (RD 125) for sample preparation of photometrical determination of COD, total chrome, total phosphate, total nitrogen and TOC. Digestion is possible with three temperature ranges and three pre-programmed reaction times. MD 100 COD is a dedicated, single parameter, instrument for COD Analysis compatible with RD 125.

BOD SYSTEM



The BOD system is fitted with an automatic sensor used for the detection of biochemical oxygen demand.

SEIVE MANIFOLD



The Endecotts Octagon 200CL sieve manifold is a test sieve instrument used for particle size analysis. Academia, Construction, Chemical & Pharmaceuticals, Mining, Agriculture, and Engineering industries define the simple precision test sieve instrument

as invaluable. Aperture sizes available: 1, 1.18, 1.4, 1.7, 2, 2.36, 2.8, 3.5mm; 850, 710, 600, 500, 425 μ m

Typical Tasks and Applications

Quality control analysis and grading of soils, aggregate, coal, minerals, cement, powders etc.

BIOGAS ANALYZER



The BIOGAS 5000 analyzer is a portable gas monitor for accurate gas monitoring within biogas applications. It is used for anaerobic gas digester analysis. It measures CH₄, CO₂, and O₂ % volume, static, differential and barometric pressures. Enables consistent collection of data for improved analysis and accurate reporting. No need for self-certification of anemometer. Easy to use and calibrate. User configurable operation. Helps check digester process is running efficiently.

Features:

- ATEX, IECEx certified.
- MCERTS certified.
- Robust design for market leading reliability.
- CH₄ and CO₂ accuracy $\pm 0.5\%$ after calibration.
- Measures % CH₄, CO₂ and O₂.
- H₂S to 0-500ppm or 10,000ppm.
- Modular and upgradeable.
- 3-year warranty.
- Stores and downloads readings.
- User selectable languages.
- Data logging.
- Up to 6 gases monitored.

Typical Tasks and Applications

- Validating flow and gas composition for Carbon Credit trading
- Waste Water biogas monitoring
- Calculating Balance Gas and Flow (SCFM)
- Farm digester biogas monitoring
- Food Processing biogas monitoring
- Methane Recovery

THERMAL CYCLER/POLYMERASE CHAIN REACTOR (PCR)



The Rotor Gene Q is a real-time nucleic acid amplification and detection system, which measures nucleic acid signals from amplified DNA using fluorescent detection. It uses a sophisticated heating and cooling design to achieve optimal reaction conditions.

Typical Tasks and Applications

- Molecular and genetic analysis.

- DNA methylation analysis
- Genotyping analysis; analyzing differences in DNA
- Food Safety testing
- Pathogen Detection; sensitive detection of viral RNA and/or DNA
- Gene expression analysis
- miRNA detection

HOT AIR STERILIZER



The GENLAB Hot Air Sterilizer comprises of a direct reading thermostat and overheat thermostat both with calibrated scales and tamper proof locks. They also include main switch with indicator and heat and overheat indicators. The hot air sterilizer is manufactured to conform with the strict requirements of hot air sterilization in laboratories and hospitals. The exterior is constructed from sheet steel finished in an easy clean powder coated paint. The interior chamber is made from hospital grade stainless steel. Fitted with fixed shelf runners and removable chrome plated wire grid shelves. The top vent is fitted with a clip to hold a mercury-in-glass thermometer.

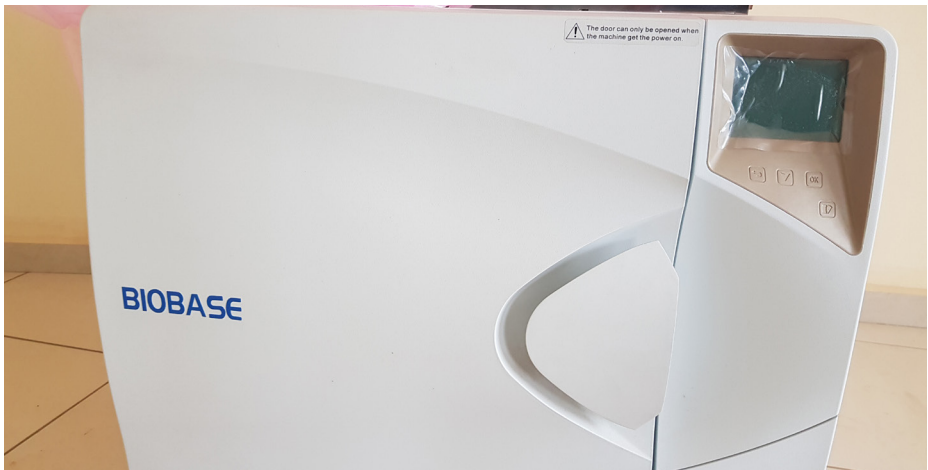
Features

- 14 sizes 50 to 1000 litres
- Direct reading thermostat with
- 120-minute run-back timer
- Temperature range: 40 to 250°C
- Fluctuation +/- 0.75°C
- Fan circulation
- Easy clean powder coated body
- Stainless steel chamber
- Safety overheat thermostat
- Full two-year warranty
- C.E. compliant

Typical Tasks and Applications

- For effectively killing microbes of all kinds, especially bacteria, viruses and moulds
- To sterilize surgical instruments, glass and petri dishes.

AUTOCLAVE



AO-BKM-BIII series sterilizer is a Class B table top sterilizer. As a type of high-pressure sterilizer, it takes steam as its sterilization medium which

is fast, safe and economic. They are commonly used in stomatology department, ophthalmology department, operating room and CSSD to make the sterilization for wrapped or unwrapped instrument, fabric, utensils, culture medium, unsealed liquid, etc.

Features

- Build-in open type water tank:
- Easy-clean open type water tank
- Water quality monitor
- Water filter inside
- Water level sensor
- A fully injected water tank can support repeated program running.
- The LCD screen can display temperature, pressure, time, operating status, error and alarm information
- Multiple security protective device
- Automatic door
- Efficient vacuum
- High-efficiency steam generator

Typical Tasks and Applications

- For sterilization
- To decontaminate certain biological waste

CENTRIFUGE



Features:

- Brushless motor.
- Stainless steel chamber.
- Can store 20 operation procedures.

Typical Tasks and Applications

- To separate fluids, gases, or liquids based on density

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