

UV-trans illuminator (eps Researcher's Choice) LUMiNA



INNOV BIO UV-TRANS ILLUMINATOR



- UV-transilluminators are used in molecular biology labs to view DNA (or RNA) that has been separated by electrophoresis through an agarose gel.
- During or immediately after electrophoresis, the agarose gel is stained with a fluorescent dye which binds to nucleic acid.
- Exposing the stained gel to a UVB light source causes the DNA/dye to fluoresce and become visible.
- This technique is used wherever the researcher needs to be able to view their sample, for example sizing a PCR product, purifying DNA segment after a restriction enzyme digest, quantifying DNA or verifying RNA integrity after extraction.

Eppendorf PCR Mastercycler® *personal*



PCR LARK CYCLER Model 125+



- Polymerase chain reaction (PCR) is a method widely used in molecular biology to make several copies of a specific DNA segment.
- Using PCR, copies of DNA sequences are exponentially amplified to generate thousands to millions of more copies of that particular DNA segment.

Applications of the technique include

- DNA cloning for sequencing,
- Gene cloning and manipulation,
- Gene mutagenesis,
- Construction of DNA-based phylogenies, or functional analysis of genes,
- Diagnosis and monitoring of hereditary diseases,
- Amplification of ancient DNA,
- Analysis of genetic fingerprints for DNA profiling (for example, in forensic science and parentage testing),
- Detection of pathogens in nucleic acid tests for the diagnosis of infectious diseases.

CO₂ Incubator (Lark Innovative Fine Teknowledge)



Incubator is a device used to grow and maintain microbiological cultures or cell cultures. The incubator maintains optimal temperature, humidity and other conditions such as the CO₂ and oxygen content of the atmosphere inside.

- ✓ Incubators are essential for a lot of experimental work in cell biology, microbiology and molecular biology and are used to culture both bacterial as well as eukaryotic cells.
- ✓ This is important in the cultivation of mammalian cells, where the relative humidity is typically >80% to prevent evaporation and a slightly acidic pH is achieved by maintaining a CO₂ level of 5%.

Incubator shaker (Revotek)



Shaking incubator



Incubator shaker



- A shaker is a piece of laboratory equipment used to mix, blend, or to agitate substances in tubes or flasks by shaking them, which is mainly used in the fields of chemistry and biology.
- An orbital shaker has a circular shaking motion and it is suitable for culturing microbes, washing blots, and general mixing.

Digital Ultrasonic cleaner WUC series



- ✓ Ultrasonic cleaning uses cavitation bubbles induced by high frequency pressure (sound) waves to agitate a liquid.
- ✓ The agitation produces high forces on contaminants adhering to substrates like metals, plastics, glass, rubber, and ceramics.
- ✓ This action also penetrates blind holes, cracks, and recesses.

Vacuum oven



- Vacuum ovens are very versatile pieces of equipment with applications in laboratory research, engineering, and industry.
- A vacuum drying oven is most often used for delicate drying processes, such as drying tiny parts or removing flammable solvents.
- The low pressure environment also minimizes oxidation during drying

REMI Quick freezers

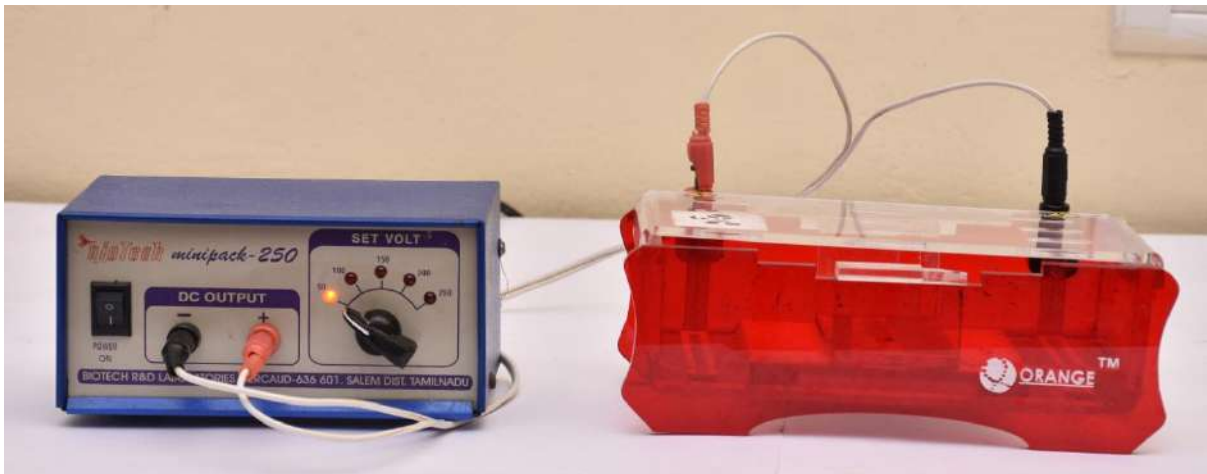


Deep freezers (Blue star)



- ✓ Deep freezers are the testing equipment that are used to preserve and store food products, medical equipment, blood samples, medicines and injections, etc. for a long period of time.
- ✓ Deep Freezers are used for industrial purposes as well as for household purposes.

Gel electrophoresis (ORANGE)



Gel electrophoresis is a method for separation and analysis of macromolecules (DNA, RNA and proteins) and their fragments, based on their size and charge. It is used in clinical chemistry to separate proteins by charge or size (IEF agarose, essentially size independent) and in biochemistry and molecular biology to separate a mixed population of DNA and RNA fragments by length, to estimate the size of DNA and RNA fragments or to separate proteins by charge.

- Nucleic acid molecules are separated by applying an electric field to move the negatively charged molecules through a matrix of agarose or other substances.
- Shorter molecules move faster and migrate farther than longer ones because shorter molecules migrate more easily through the pores of the gel.
- This phenomenon is called sieving. Proteins are separated by charge in agarose because the pores of the gel are too large to sieve proteins.
- Gel electrophoresis can also be used for separation of nanoparticles.

Electronic Digital Balance



A Beam balance (or Beam scale) is a device to measure weight or mass. These are also known as mass scales, weight scales, mass balance, weight balance, or simply scale, balance, or balance scale.

- Some scales can be calibrated to read in units of force (weight) such as newtons instead of units of mass such as kilograms.
- Scales and balances are widely used in commerce, as many products are sold and packaged by mass.

Gel Rocker Li-GR-E-100 (ORANGE)



A **rocker** is a device used in laboratories for molecular and biological mixing applications. Rockers are often used in place of shakers when less aggressive mixing is required.

- Rockers are commonly used for staining and de-staining gels after electrophoresis, hybridization, washing, blotting, Cell culture and gentle mixing.
- Two-dimensional rockers use a platform that moves in a seesaw motion to create waves in liquid laboratory samples. Three-dimensional rockers move a platform in a three-dimensional gyratory motion to create a gentle swirling of samples.

Aplab Regulated dual Direct Current (DC) power supply (LD6402)



A **power supply** is an electrical device that supplies electric power to an electrical load. The primary function of a power supply is to convert electric current from a source to the correct voltage, current, and frequency to power the load. As a result, power supplies are sometimes referred to as electric power converters. Some power supplies are separate standalone pieces of equipment, while others are built into the load appliances that they power.

- A DC (Direct current) power supply is one that supplies a constant DC voltage to its load. Depending on its design, a DC power supply may be powered from a DC source or from an AC source such as the power mains.
- To removal of organic and inorganic contents from pollutant contaminated soil by Electrokinetic process

Chemical oxygen demand (COD) analyzer (Spectroquant TR320)



- ✓ The COD value indicates the amount of oxygen which is needed for the oxidation of all organic substances in water in mg/l or g/m³.
- ✓ The COD (Chemical Oxygen Demand) is closely related to the laboratory standard method named Dichromate-Method.
- ✓ With this method, the chemical oxygen demand is determined during chromic acid digestion of organic loads in the waste water.
- ✓ Based on this method the COD became a commonly used sum parameter in waste water analysis.
- ✓ It is used for planning of waste water treatment plants, for controlling the cleaning efficiency and for the calculation of waste water taxes.

Anaerobic jar



Anaerobic jar is an instrument used in the production of an anaerobic environment. This method of *anaerobiosis* as others is used to culture bacteria which die or fail to grow in presence of oxygen (*anaerobes*).

- The culture media are placed inside the jar, stacked up one on the other, and growth free culture plate at the end of the process indicates a successful anaerobiosis. However, *P. aeruginosa* possesses a denitrification pathway. If nitrate is present in the media, *P. aeruginosa* may still grow under anaerobic conditions.

Keysight Data Acquisition switch Unit for microbial fuel cell



Key Features & Specifications

- 3-slot mainframe with USB and LAN
- 6 1/2-digit (22-bit) internal DMM, scanning up to 450 channels per second with new solid-state multiplexer module
- 8 switch and control plug-in modules to choose from
- Built-in signal conditioning measures thermocouples, RTDs and thermistors, AC/DC volts and current; resistance, frequency/period, diode test and capacitance
- 100k readings of non-volatile memory holds data when power is removed
- Hi/LO alarm limits on each channel, plus 4 TTL alarm outputs
- A BenchVue software license (BV0006B) is now included with your instrument. BenchVue makes it simple to connect, control instruments, and automate test sequences

This Data Acquisition switch Unit was mainly used for Data monitoring and recording on current profile vs Time from microbial fuel cell.

HIOKI 3632-50 LCR HiTESTER



An **LCR meter** is a type of electronic test equipment used to measure the inductance (L), capacitance (C), and resistance (R) of an electronic component.

- In the simpler versions of this instrument the impedance was measured internally and converted for display to the corresponding capacitance or inductance value.
- Readings should be reasonably accurate if the capacitor or inductor device under test does not have a significant resistive component of impedance.
- More advanced designs measure true inductance or capacitance, as well as the equivalent series resistance of capacitors and the Q factor of inductive components.

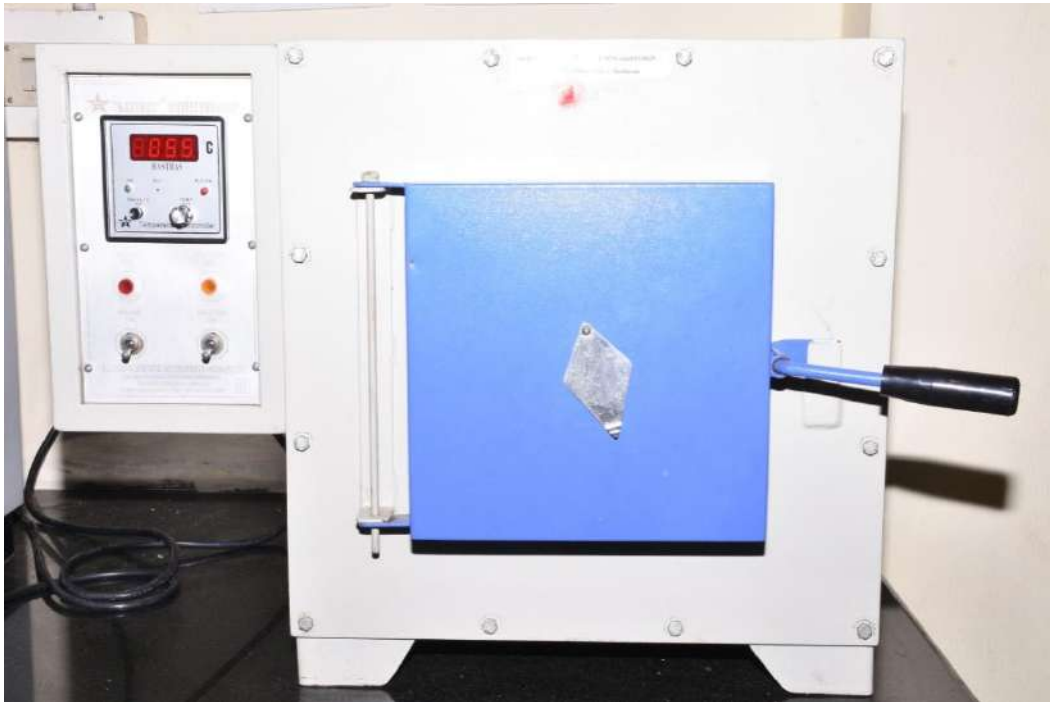
Photocatalysis chamber with power supply unit (Revathe)



In chemistry, photocatalysis is the acceleration of a photoreaction in the presence of a catalyst. In catalysed photolysis, light is absorbed by an adsorbed substrate. In photogenerated catalysis, the photocatalytic activity (PCA) depends on the ability of the catalyst to create electron-hole pairs, which generate free radicals (e.g. hydroxyl radicals: •OH) able to undergo secondary reactions. Its practical application was made possible by the discovery of water electrolysis by means of titanium dioxide (TiO₂).

- Disinfection of water by supported titanium dioxide photocatalysts, a form of solar water disinfection (SODIS).
- Use of titanium dioxide in self-sterilizing photocatalytic coatings (for application to food contact surfaces and in other environments where microbial pathogens spread by indirect contact).
- Oxidation of organic contaminants using magnetic particles that are coated with titanium dioxide and agitated using a magnetic field while being exposed to UV light. nanoparticles

Muffle furnace



A **muffle furnace** or **muffle oven** (sometimes **retort furnace** in historical usage) is a furnace in which the subject material is isolated from the fuel and all of the products of combustion, including gases and flying ash.

- Today, a muffle furnace is (usually) a front-loading box-type oven or kiln for high-temperature applications such as fusing glass, creating enamel coatings, ceramics and soldering and brazing articles.
- In ceramics muffle kilns were typically used for relatively low temperatures, for overglaze decoration.
- They are also used in many research facilities, for example by chemists in order to determine what proportion of a sample is non-combustible and non-volatile (i.e., ash).

Tubular furnace (High power)



- A **tube furnace** is an electric heating device used to conduct syntheses and purifications of inorganic compounds and occasionally in organic synthesis.
- One possible design consists of a cylindrical cavity surrounded by heating coils that are embedded in a thermally insulating matrix.
- Temperature can be controlled via feedback from a thermocouple.
- Tube furnaces can also be used for thermolysis reactions, involving either organic or inorganic reactants.