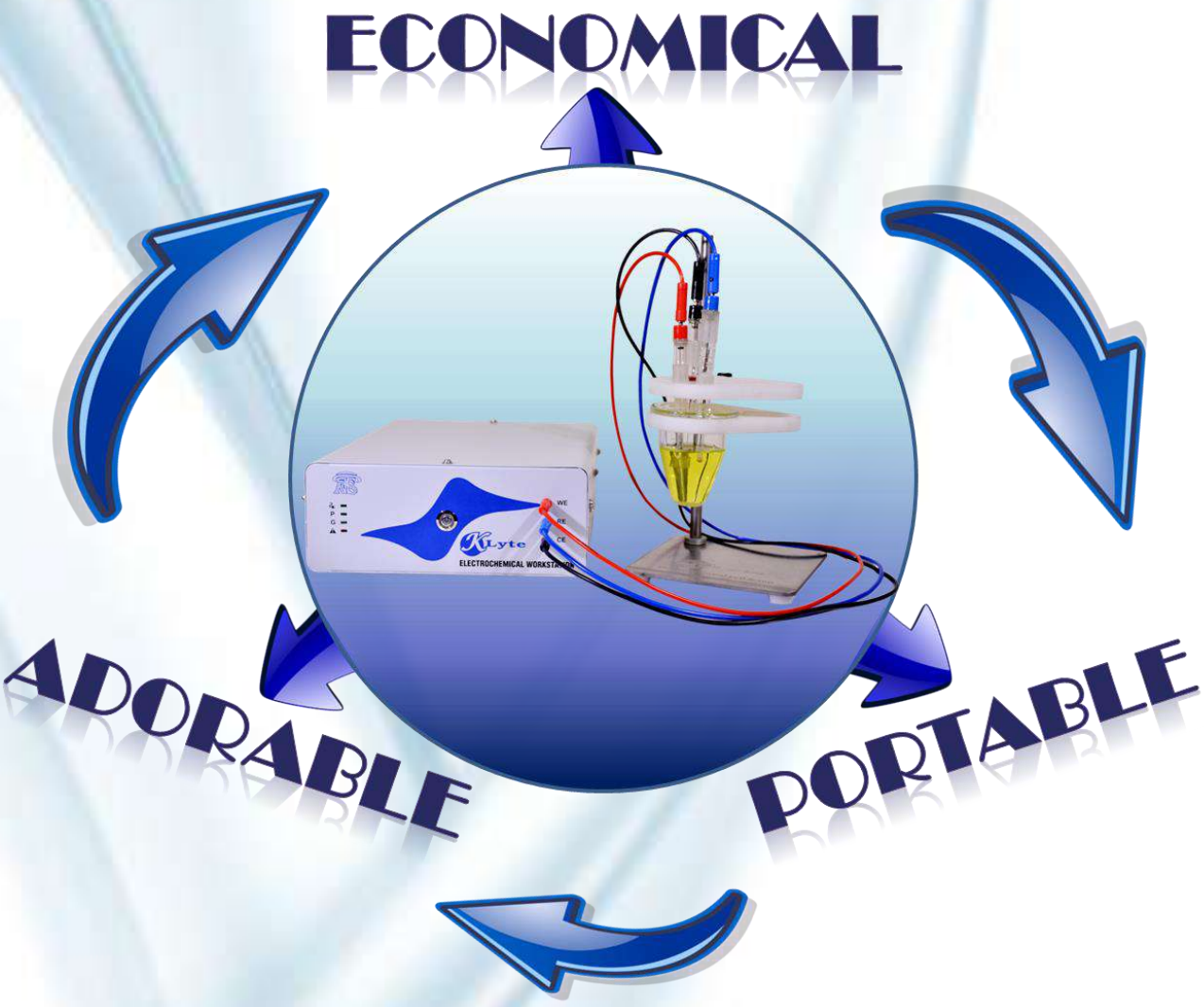
Kanopy Techno Solutions

A complete solution for your Electrochemistry research initiative…



Kanopy Techno Solutions introduces one stop solution for your Electrochemistry research initiative which helps you exploring electrochemistry fundamentals & its applications.

About the Company

Kanopy Techno Solutions is an organization comprising experts in electro-chemistry and nanotechnology. Our team includes a team of highly experienced researchers from one of the most renowned technological institute in India. In electrochemical science and engineering, we provide solutions in electrocatalysis and electrochemical process engineering. Expert areas are that of electrochemical instrumentation, multiscale simulation, and electrochemical reaction engineering. In nanotechnology, we are experts in nanofluidics and nanofabrication technologies, including click-chemistry and nanolithography. We are heavily equipped with state-of-art laboratories and techniques, including published papers and patents.

Our research and development base is situated in TechnoPark, IIT Kanpur, which is India's one of the largest research hub. Our research & development collaborate with the institute.

Our key solutions include electrochemical laboratory instruments and accessories, which include Potentiostat, Galvanostat, electrodes, and various electrochemical cells. Our consultancy service promotes research institutes and industries to do quality research.

Contact us:

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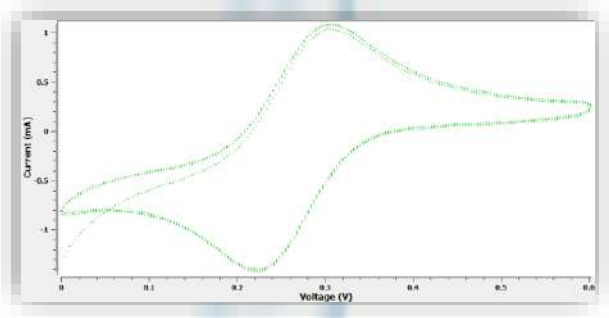
Potentiostat



Specification	K-Lyte 1.0	K-Lyte 1.2
Methods:	▪ Linear Sweep Voltammetry ▪ Cyclic Voltammetry ▪ Chronoamperometry	▪ Linear Sweep Voltammetry ▪ Cyclic Voltammetry ▪ Chronoamperometry ▪ Pulsed Voltammetry (SCP, NPV, DPV & SWV) ▪ OCP Measurement ▪ Tafel Analysis ▪ Linear Polarization
Electrode Configuration	2 Electrode & 3 Electrode	2 Electrode & 3 Electrode
Applied Voltage Range	-2.0 V to +2.0 V	±5 V, ± 10V
Compliance Voltage	Up to +-12 V	Up to +-15 V
Applied Potential Resolution	Up to 1 mV	Up to 150 µV
Applied Potential Accuracy	Within 0.1% of voltage scale	Within 0.05% of voltage scale
Scan Rate	1 mV/s to 100 mV/s	1 µV/s to 1000 mV/s
Maximum Current	±10 mA Continuous & ±20 mA Peak	±1A Continuous & ±1.2 A Peak
Current Ranges	5 Ranges (1uA, 10 µA, 100 µA, 1 mA & 10 mA)	8 Ranges (100 nA, 1 µA, 10 µA, 100 µA, 1 mA, 10 mA & 1A)
Current Resolution	80 nA (at 10 µA Current Range)	15 pA (at 100 nA Current Range)
Reference Input Impedance	> 1 GΩ	> 10 TΩ
ADC & DAC Resolution	12 bits	16 bits
Input Bias Current	< 30 pA	< 30 pA
Unity Gain Bandwidth	1.4 MHz	1.4 MHz
Control	Software Control through computer	Software Control through computer
Communication	USB interface communication with the computer	USB interface communication with the computer

Potentiostat / Galvanostat

Specification	PG-Lyte 1.0

Methods:

Potentiostat

- Linear Sweep Voltammetry
- Cyclic Voltammetry
- Chronoamperometry
- Pulsed Voltammetry (SCP, NPV, DPV & SWV)
- OCP Measurement
- Tafel Analysis (Corrosion Measurement)
- Linear Polarization (Corrosion Measurement)

Galvanostat

- Linear Sweep Voltammetry (Galvanostatic)
- Cyclic Voltammetry (Galvanostatic)
- Chronopotentiometry
- Galvanostatic Charge-Discharge

Cell Connection	2, 3	
Compliance Voltage	±15V	
Slew Rate	Rising	1.5 V/µs
	Falling	8 V/µs
	Settling Time	7.5 µs
Input Impedance Reference	> 10 TΩ	
Unity Gain Bandwidth	1.4 MHz	
Input Bias/Leakage Current	±15 pA	
DAC and ADC bit	16 bit	
Data Acquisition Rate/Sampling Rate	100 Ksps	
CMRR	106 dB	

Potentiostat

Applied Voltage Range	±5 V, ± 10V
Applied Voltage Accuracy	Within 0.05% of voltage scale
Applied Voltage Resolution	Up to 150 µV
Measured Current Range	Max ±1A (Continuous) in 8 Ranges (100 nA, 1 µA, 10 µA, 100 µA, 1 mA, 10 mA & 100 mA & 1A)
Measured Current Resolution	15 pA @ 100 nA Range
Scan Rate	1 µV/s to 1000 mV/s

Galvanostat

Applied Current Range	Up to ±1A (Continuous)
Applied Current Resolution	Up to 15 nA
Applied Current Accuracy	Within 0.1% of the current scale
Scan Rate	1 µA/s to 1000 µA/s
Maximum Current	±1A (Continuous)

Chassis Information

L x W x H	320 mm x 220 mm x 90 mm
Weight	3.05 Kg

Features

IR Compensation (1 Ω to 10 kΩ)	**Cyclic Voltammetry Data Analysis Options**
Zero Resistance Ammeter	**Data AutoSave & Manual Save Option**
User-defined Data Sampling Rate	**Save data files in image & excel format**

Electrochemical Impedance Spectroscopy

Specification	EIS
Methods:	**EIS**
Cell Connection	2, 3
Input offset voltage	150 mV
Compliance Voltage	±15V
Slew Rate	2200 V/ µs
Rise Time	40 ns/V
Input Impedance	700 Ω
Unity Gain Bandwidth	90 MHz
Output Short Circuit Current	±90 mA
Input Bias/Leakage Current	500 nA
DAC and ADC bit	14 bit
Data Acquisition Rate/Sampling Rate	125 MS/s
CMRR	110 dB
Rise/Fall Time	4 ns
EIS	
Impedance measuring range	10 Ω to 10 GΩ
Applied Frequency range	100 mHz to 1 MHz
Applied Wave Options	Linear & Logarithmic
Signal Type	Sine wave
Data Presentation	Nyquist, Bode
Data Analysis & Fitting	Available
AC Voltage Amplitude	±1 V
Frequency Resolution	1 mHz
DC Offset Range	±5 V
Chassis Information	
L x W x H	320 mm x 220 mm x 90 mm
Features	
Auto Current Ranging	
Zero Resistance Ammeter	

Electrodes

Pt Electrode:

- Platinum Mesh/Tip/Foil/Coil
- High mesh surface area
- Long term stability
- Robust design
- Banana pin connector
- Holder for griping
- 99.95% Pure Pt
- Customization Available

Disc Type Electrode:

- Glassy Carbon / Gold / Platinum
- Available with 2mm, 3mm, 5mm Dia
- Cylindrical casing
- PTFE casing material
- Mirror-finish surface

Reference Electrode (Ag/AgCl, SCE, Hg/HgO, Hg/Hg_2SO_4, $Cu/CuSO_4$, Non Aq Ag/Ag^+):

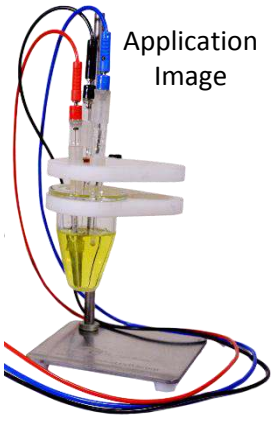
- Dual Compartment
- Porous Glass Frit
- Long term stability
- Working temperature range 0°C to 100°C Depending on the reference electrode type

- **Standard Solution:**
  Ag/AgCl (3M KCl)
  SCE (Saturated KCl)
  Hg/HgO (1M NaOH)
  Hg/Hg_2SO_4 (1M H_2SO_4)
  $Cu/CuSO_4$ (1M $CuSO_4$)
  Non Aq Ag/Ag+ (10mM $AgNO_3$, 0.1M TDAB in Acetonitrile)

Electrochemical Cells

Electrochemical Cell Set-up:

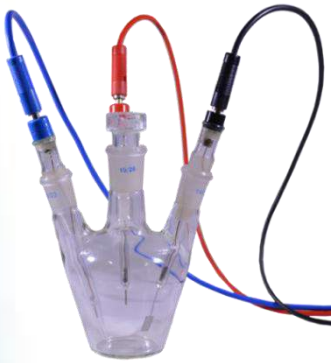
- Combined with salt bridge compartment
- Cell Volume up to 100 mL
- Available with a specific salt bridge
- Easy to handle
- Removable/Adjustable holders
- Working electrode connector
- Applicable at moderate temperature range (0 to 100°C)
- Customization Available
- Material: Borosilicate glass



Gas-tight cell:

- Available volumes: 100mL & 50mL
- Cell type: Conical
- Neck type: 4 Necks (3 B14 & 1 B19)
- Material: Borosilicate Glass
- Max Temperature: 100^{0}C

Note: Electrodes & Cables in the image are not included in cell pricing.



Mini gas-tight Cell:

- Available with 20 mL & 50 mL
- Borosilicate & PTFE material
- Hole Size on the lid: 5mm
- Max Temperature: 100^{0}C
- Available with & without Stand

Gas-tight thermal jacket cell:

- Cell Type: Conical
- Neck type: 4 Necks (3 B14 B14 & 1 B19)
- Material: Borosilicate Glass
- Volume: 100 mL
- Max. temperature: 150^{0}C

Press-Fit Inert Cell:

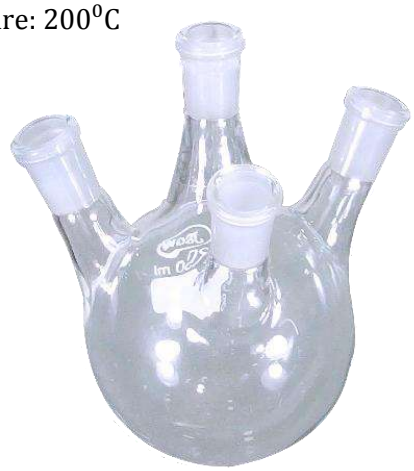
- Available with 10 mL
- Screw-tight fit
- Perfect to work in an inert atmosphere
- Borosilicate & PTFE material
- Hole size on lid: 5mm & 6mm
- Room temperature functioning

Flat Corrosion Cell:

- Available Volume: 50mL & 250 mL
- 10 mm x 10 mm Pt mesh as Counter Electrode
- 10 mm x 10 mm Working Electrode Slot
- Reference Electrode (SCE)
- With & without a luggin capillary for a reference electrode
- Max Temperature (80°C)
- Material: Borosilicate glass

Round bottom cell setup:

- Cell Type: Round Bottom
- Neck Type: 4 Neck (3 B14 & 1 B19)
- Material: Borosilicate Glass
- Volume: 100 mL
- Max. temperature: 200^{0}C



PHOTOELECTROCHEMICAL CELL:

- Available volume: 150 mL & 250mL
- Quartz optical window for a light source
- Window size: 20mm in 150mL cell & 30mm 250mL cell
- Detachable optical window
- PTFE lid for holding electrodes
- Gas-tight fitting
- Provision for attaching the working electrode holder

Note: Electrode holder price is not included In the Cell price.

H CELL:

- Two-compartment cell
- Gas-tight fitting
- Compartment volume: 50 mL
- Separator available
- Porous glass-frit separation
- Membrane Separation set-up
- PTFE lid available for both compartments
- Provision for purging gas

Other Products

Working Electrode Holder:

- Available with Screw-type & Crocodile-type
- Copper Rod for Connection
- Teflon body holder

FTO & ITO Plate:

- Substrate: Soda-lime float glass
- Dimension: 2cm x 1cm
- FTO Coated Glass
  Resistivity: <10 ohms/sq
  Film thickness: 1800-2000Å
  Plate thickness: 2.2mm
  Transmittance at 550nm – ≥ 79%
- ITO Coated Glass
  Resistivity: ~10 ohms/sq
  Film Thickness: 1800-2000Å
  Plate thickness: 0.7mm
  Transmittance at 550nm – ≥ 87%

Note: Customized dimensions available

Banana Connector Cables:

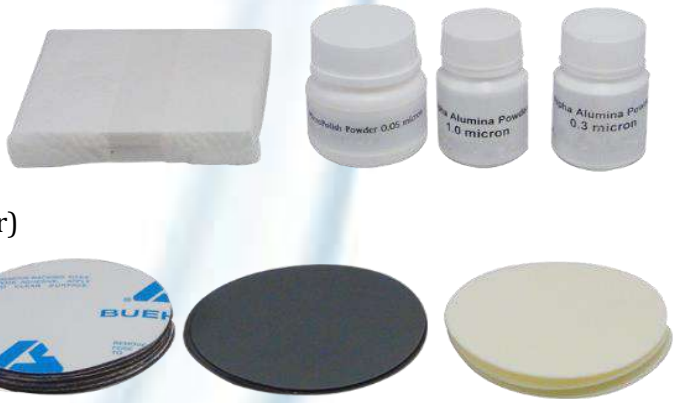
- Highly Flexible & Less Noise
- Current Rating: 5A
- Length: 1 meter
- Connector type: 3.5mm Banana Pin
- Available Color: Red, Blue & Black

High-quality Alligator Clip:

- Corrosion Resistive
- Banana Female Connector
- Available Colors: Red & Black
- Optimum for Holding Samples
- Current rating: 15 Amp

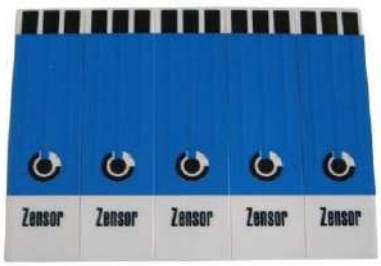
Polishing Kit:

- Contains 1 bottle of 1.0-micron Alpha alumina powder
- 1 bottle of 0.3-micron Alpha alumina powder
- 1 big bottle of 0.05-micron Gamma alumina powder
- 2 plastic plates for polishing pads
- 5 pieces of 73 mm diameter 1200 grit disks (grey in color) 5 pieces of Carbimet diameter Nylon polishing pads- 73 mm (white in color), and 10 pieces of 73 mm diameter Micro-cloth polishing pads (brown in color)



Screen Printed Electrodes:

- Dimensions: 50 x 13 mm (h x w)
- Working electrode: 3 mm diameter disk
- Materials: graphitic carbon powder (working and auxiliary electrodes), Ag/AgCl pellet (reference)

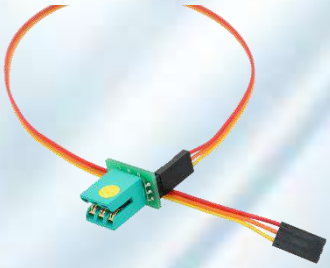


Nafion Dispersion:

- D1021 Nafion™ Dispersion - Water-based 1100 EW at 10 wt%
- D2020 Nafion™ Dispersion - Alcohol-based 1000 EW at 20 wt%
- D2021 Nafion™ Dispersion - Alcohol-based 1100 EW at 20 wt%
- D520 Nafion™ Dispersion - Alcohol-based 1000 EW at 5 wt%
- D521 Nafion™ Dispersion - Alcohol-based 1100 EW at 5 wt%

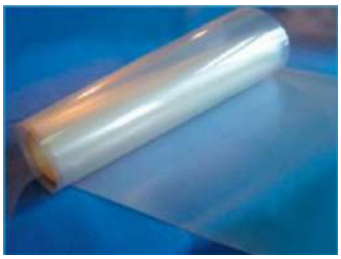
Screen printed electrode connecter:

- Adapter Type C
- POT-03-C



Nafion Membrane:

- Nafion™ 1110
  Length: 30cm
  Width: 30cm
  Thickness: 254 µm
- Nafion 115 & Nafion 117
  Length: 30cm
  Width: 30cm
  Thickness: 183 µm



Upcoming Instruments:

- KLyte 1.4 (Potentiostat & Galvanostat with EIS & Current Upto 1A, Resolution up to 1pA)

Upcoming Accessories:

- Rotating Disc Electrode Assembly and Cell Setup
- Solar Simulator

Electrode Materials

Conducting Carbon Paper:

- Thickness: 0.3 mm
- Width: 200 mm
- Length: 210 mm

Conducting Carbon Cloth:

- Thickness: 320 μm
- Width: 200 mm
- Length: 200mm

Activated Carbon:

- BET: 2000~2500 m^2/g
- ASH (%): <0.5
- Moisture (%) : <10
- Bulk specific weight: >0.4g/mL
- Grain (D50): ~10 um
- Water system Reference capacitance: 160-200 F/g

Graphite Electrode:

- Thickness: 10 mm
- Length: 100 mm

Nickel Foil:

- Thickness: 0.1 mm
- Width: 100 mm
- Purity: >99.95%

Iron Foil:

- Thickness: 0.1 mm
- Width: 25 mm
- Length: 25 mm
- Purity: >99.95%

Copper Foil:

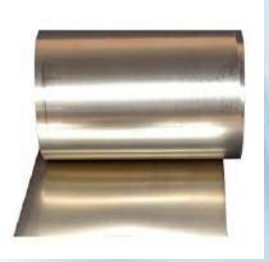
- Thickness: 1 mm
- Width: 300 mm
- Purity: >99.50%

Aluminum Foil:

- Thickness: 16μm
- Width: 200 mm
- Purity: >99.45%

Titanium Foil:

- Thickness: 0.15 mm
- Width: 470 mm
- Purity: >99.95%



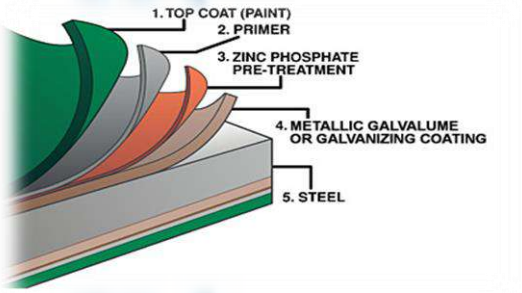
Nickel Foam:

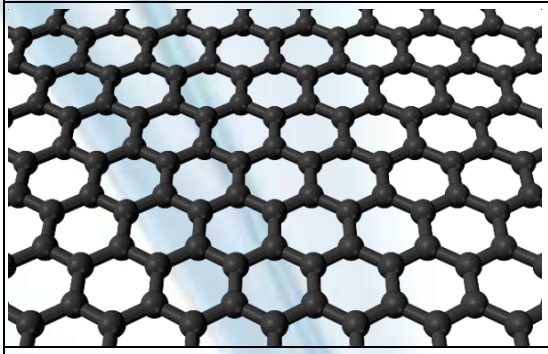
- Thickness: 1 mm & 0.5 mm
- Width: 200 mm
- Length: 300 mm

Applications

Corrosion research:

Kanopy instruments are suitable for corrosion rate testing and protection. Electrode fabrication can also be performed for corrosion protection.



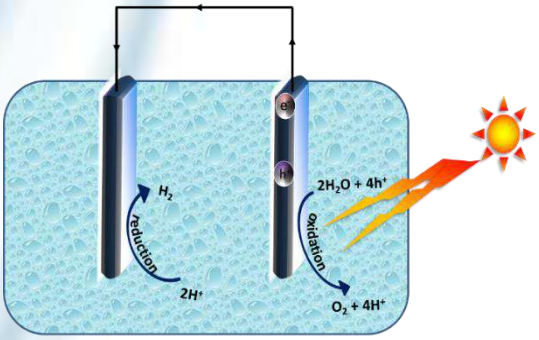


Nanotechnology:

With Kanopy instruments one can explore nano world which includes electrochemical synthesis of nanomaterials, nano-electro etc.

Photoelectrochemistry:

Kanopy instruments are capable of performing Photoelectrochemical analysis for photoelectrochemical water splitting/hydrogen generation.

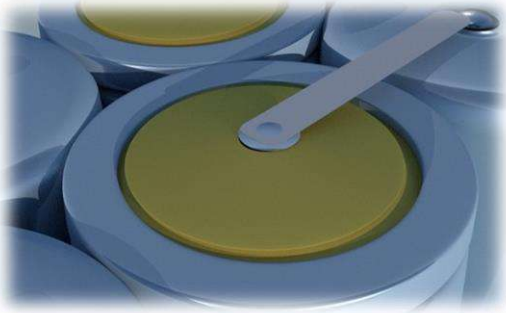


Sensing applications:

Kanopy instruments are useful to characterize/synthesize/analyze different electrochemical sensors.

Battery / Supercapacitor Synthesis and Analysis:

Kanopy instruments are useful to characterize/synthesize/analyze different batteries, supercapacitors & pseudocapacitors.



Our Valuable Clients

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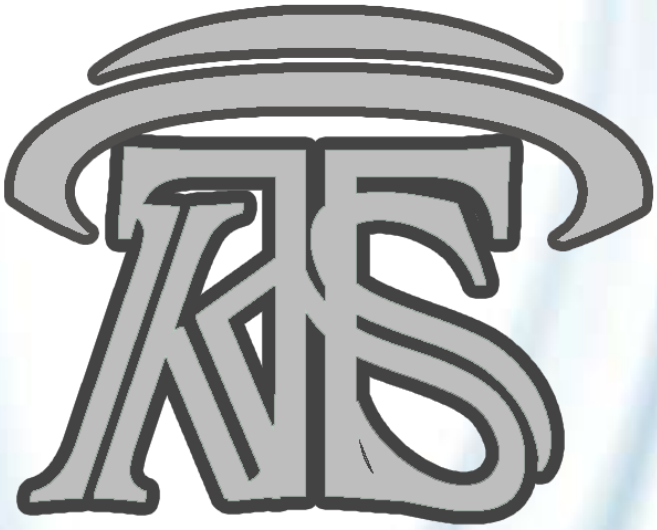

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