



**SUPER
SCIENTIFIC
INSTRUMENTS**

- CUSTOMISED CELL
- BATTERY MATERIAL
- FUEL CELL MATERIAL
- PEM/AEM ELECTROLYSER
- ELECTROCHEMISTRY ELECTRODES

Navigator
Technologies

- NEW PRODUCT DEVELOPMENT
- PCB DESIGNING
- EMBEDDED/VLC DESIGN
- PLC CONTROLLER



WORKING ELECTRODES

WORKING ELECTRODE TYPES

- Glassy Carbon Electrode
- Gold Working Electrode
- Platinum Working Electrode
- Detachable Glassy Carbon Electrode
- Copper Working Holder
- Stainless Steel Holder
- Platinum Plate Electrode Holder
- Copper Working Electrode
- Nickel Working Electrode
- Stainless Steel Working Electrode
- Screen Printed Electrode/Holder



FOILS

- Copper & Aluminum Foil
- Tin Foil
- Magnesium Foil
- Zinc Foil
- Stainless Steel Foil
- Molybdenum Foil



CARBON

- Carbon Cloth
- Carbon Paper
- Conductive Carbon Black
- Super P, Activated Carbon
- Hard Carbon

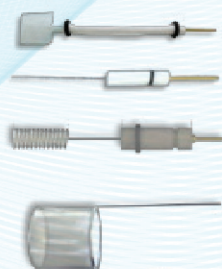


ENERGY CELLS

- CO2 Reduction Cell
- Capacity de-ionization cell
- In-Situ Raman Spectroscopy Electrochemical Cell
- Solid state battery test cell
- Flow cell

CATHODE MATERIALS

- Lithium chips
- Aluminum & Copper plate
- POUCH CELL MATERIALS
- Aluminum laminated film
- Pouch cell Holder
- Coated Materials
- Nickel tabs



BATTERY/SUPER CAPACITOR SEPERATORS

- Separator PP-PE-PP
- Separator PE
- Separator PP
- Cellulose Based Separator



REFERENCE ELECTRODE TYPES

- Ag/AgCl Electrode
- Non aqueous Ag/AgCl Electrode
- Saturated Calomel Electrode
- Hg/Hg0 Electrode
- Hg/HgSO4 Electrode
- Standard Hydrogen Electrode (No External Hydrogen Req.)
- High Temperature Electrode

COUNTER ELECTRODE TYPES

- Platinum Wire Electrode
- Platinum Mesh Electrode
- Platinum Plate Electrode
- Platinum Gauze Electrode
- Graphite Rod Electrode
- Electrode Polishing Kit

ANODE MATERIALS

- Graphite Powder
- Carbon Coated Copper Foil
- Carbon Coated Al Foil
- Carbon coated carbon cloth

ANODE BINDERS

- Polyvinylidene Fluoride (PVDF)
- Styrene Butadiene Copolymer (SBR)

FOAMS

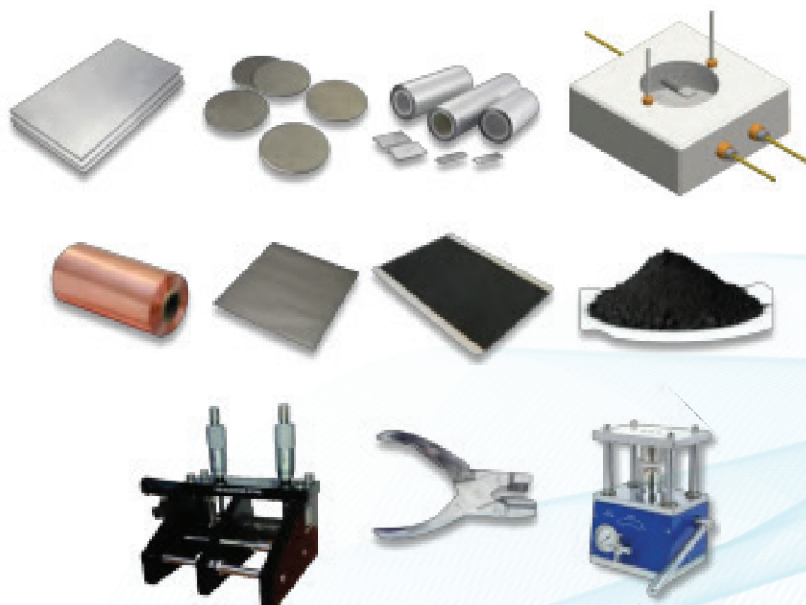
- Nickel Foam
- Copper Foam
- Aluminum Foam
- Titanium Foam
- Stainless Steel Foam

FUEL CELL MATERIALS/FIXTURES

- Cation/Anion Exchange Membrane
- Gas Diffusion Layer (GDL)
- Fuel Cell/Electrolyzer Materials
- Fuel Cell Test Station (Custom Made)
- CATION/ANION MEMBRANES
- GAS DIFFUSION LAYER (DOL)
- ELECTROLYSER
- Redox Flow Battery (Custom Made)

VOLTAMMETRY/HOLDERS CELLS

- Analytical Cell With Stand
- Spectro Photoelectrochemical Cell
- H-Type/Water Splitting Cell
- Coating/Corrosion/Paint Cell Kit
- FUEL CELL FIXTURES
- Spectre cell
- RFB
- Cell Stand/Purging Tube
- Photoelectrochemical Cell
- 2032 Coin Cell/Coin cell Meshed Parts
- Membrane/Thin Film Conductivity Setup



FLOW PRESSURE MEASUREMENT AND CONTROL

- Mass flow meter
- Mass flow controller
- Back pressure controller
- Liquid flow controller
- Liquid flow meter



Battery cyclers single channel to multi channels
upto 500 channels or more
Dcir, Fuds, Acir, Drive Simulation
1000w and 100a Battery Cyclers
Custom Requirement



Swagelok Type Cell (two electrode)
T Shape cell/ 3 Electrode Type cell
Solid State Battery setup
Pressure test coil



Whatman® glass microfiber

- Water and air pollution monitoring and wastewater filtering
- Battery and Fuel Cell Application
- Filtering of algae and bacteria cultures
- Protein filtration
- Radioimmunoassay of weak β emitters
- Gravimetric determination of airborne particulates



Fuel Cell Catalyst

Platinum serves as a crucial element in fuel cell technologies. In the context of a polymer electrolyte membrane fuel cell (PEMFC), platinum is typically utilized as a catalyst, supported on carbon, for both the anode and cathode reactions. Pt catalyst widely used for several electrochemical application.

Pt on carbon

• Acta Pt5-50VC	Surface Area	:	40 to 100m ² /g
• Acta Pt5-50HSC	Metal Purity	:	99% min
• Acta Pt5-50AB	Avg Particle Size	:	<5 nm
• Acta Pt5-50AC	Avg Aggregate Size	:	2.5-4 microns
	Colour	:	Black



DMFC Catalyst

Catalyst for Direct methanol Fuel cell & reformat hydrogen. Used for fuel cell anode in dmfc system.

Pt on carbon

- Acta PtRu5VC - 60VC
- Acta PtRu Black



Electrolyzer Catalyst

Platinum Black is most commonly used in cathode of electrolyzer and DMFC.

Pt on carbon	Surface area : 25m ² /g
• Acta Pt100	Particle size : >10nm
• Acta IrO ₂	



Gas Diffusion Layer (GDL)

We make customised Gas diffusion layer for PEMFC, HTPMEMFC, DMFC, Microbial Fuel Cell and the carbon loading as per customer specification. For carbon paper loading ranging from 0.25 to 1.5mg/cm². Carbon cloth generally ranging from 3 to 5mg/cm² Size : 20x20cm , 30x30cm & 40x40cm.

Pt on carbon

- Carbon Cloth - Avcarb
- Thickness : 0.4 mm
- Carbon loading : 3-5mg/cm² (Single side & double side available)
- PTFE loading : 20 to 30%
- Carbon paper - Toray, Avcarb & JNT
- Thickness : 0.2 to 0.4 mm
- Carbon loading : 0.25 to 1.0mg/cm² (Single side)
- PTFE loading : 10 to 20%



Gas Diffusion Layer Ink (GDLI)

For the preparation of Microporous layer need carbon ink which consists of carbon powder mixed with PTFE or PVDF or Nafion binder. For researcher and academic institution it is difficult to make ink with small quantity and PTFE dispersion also not available in smaller volume. The ready to use ink will save time, energy and money.



Pt on carbon

- Acta-GDL-Ink-T
- Acta-GDL-Ink-N

The ink available with Vulcan XC72 and Acetylene black and other carbons. The Ink is suitable for brush and spray coating.

Available : 10 to 100 grams.

PEM Fuel Cell Stack

Stack capacity ranging from 100 to 1000 watts (water cooled).

Open air cathode fuel cell stack : 10 watts to 500watts.

Stack for portable electronics applications up to 100 watts.



Gas Diffusion Electrode (GDE)

GDE used for electrochemical applications as well as for making anode and cathode of various fuel cells like Polymer electrolyte membrane fuel cell, high temperature PEM, Alkaline fuel cell and Phosphoric acid fuel cell etc., Gas diffusion layer with Pt loading ranging from 0.25mg to 1.0 mg/cm² with various percentage of Pt/C (20 to 60%). Our standard loading for the GDE is 0.5mg and 0.25mg/cm². Available in both carbon cloth and carbon paper based GDE.

GDE also Possible to supply as per customer dimension with specific loading of catalyst.

Pt on carbon

(Carbon cloth & Carbon paper)

- Acta GDE - 0.1mg/cm²
- Acta GDE - 0.2mg/cm²
- Acta GDE - 0.3mg/cm²
- Acta GDE - 0.4mg/cm²
- Acta GDE - 0.5mg/cm²
- Acta GDE - 1.0mg/cm²

PtRu on carbon catalyst

Metal loading ranging from 2 to 4mg/cm²

Available size : 10x10cm, 20x20cm



Catalyst Coated Membrane (CCM)

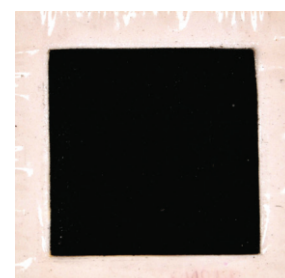
The catalyst which is coated directly on the membrane to improve the contact between membrane and the catalyst layer. CCM also improves the overall performance of the fuel cell. Three layer membrane electrode assembly with catalyst loading ranging from 0.1mg to 0.5mg/cm².

Pt on carbon

- Acta 3LCCM
- Acta 5LCCM
- Acta 7LCCM

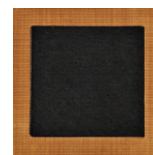
Active area 6.25 to 100cm²

Membrane Nafion 211, 212



Membrane Electrode Assembly

Membrane electrode assembly is core components of fuel cell stack. A typical MEA is composed of a Polymer Electrolyte Membrane (PEM), two catalyst layers, and two Gas Diffusion Layers (GDL). A MEA with this configuration is known as a 5-Layer MEA. If gasket is added then it is seven layer MEA. MEA is also possible as per customer dimension and specification.



Anode Loading : 0.25mg/cm²
Cathode Loading : 0.5mg/cm²
Membrane : Nafion 211, 212

The available size of 5 layer MEA from 5cm² to 300cm².

Electrocatalyst Ink

Ready to use for the preparation of Gas Diffusion Electrode and Catalyst Coated Membrane. This electrocatalyst Ink contains nafion binder.

- Save time and energy and quality dispersion.
- Ink is suitable for spray as well as for brush coating.

Pt on carbon
• Acta-PtC-Ink

Available : 1 to 10 grams
• Pt% as per customer specification.
• It is also available with PTFE binder.



Fuel Cell Hardware

The flow field design is parallel and single serpentine for cathode and anode respectively. Flow field plate can be customized as per customer needs. End plate with Al alloy or SS316 and current collector without gold coating. Gold coating is optional. The other necessary hardware are the part of the assembly. Additional accessory are temperature controller with thermocouple and Torque wrench.

Available size : 5cm² to 300cm²

Temperature controller and thermocouple is optional.



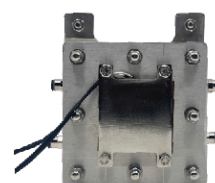
Electrolyzer Hardware

Laboratory experimental setup for production of hydrogen and oxygen. The unit cell assembly consist of grooved titanium plate as a current collector cum water flow distributor.

PEMWE : Titanium plate.

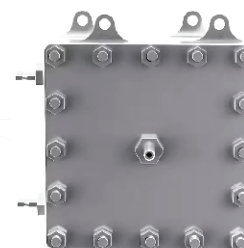
Pt plating is optional.

Alkaline electrolyzer : Nickel or SS316 grooved plate.



AEM ELECTROLYZER

		Unit	Parameter	Remarks
Hydrogen production capacity		ml/min	300	Error range $\pm 3\%$
Oxygen production capacity		ml/min	150	Error range $\pm 3\%$
Water consumption		ml/h	98	The water from the oxygen outlet returns to the water tank
Hydrogen purity			99.9%-99.999%	After drying and purification
Loop mode				Gravity circulation/water pump circulation
Electrolysis method		Pure water electrolysis		No need to add alkaline solution, safe and reliable, easy to maintain
Pressure tolerance range		MPa	0.1-1.6	
Water quality requirements (conductivity)		$\mu\text{S/cm}$	≤ 1	Purified water, secondary distilled water, deionized water
Power requirements	Rated current AD	ADC	20	
	output voltage	VDC	6	
Dimensions (LxWxH)		mm	99*113*35.5	Excluding terminal blocks and connectors
Other matters		Electrolytic cell inlet, hydrogen and oxygen outlet connecting pipe size: 2 pipes		
application area		Hydrogen production machines, hydrogen absorption machines, hydrogen oxygen machines, hydrogen generators, hydrogen oxygen generators, hydrogen enriched water		



PEM ELECTROLYZER

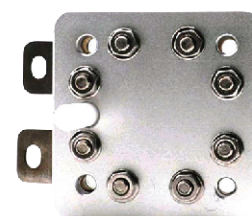
- **Size (mm):26.28*52*46.8**
[+8.2mm/layer, each additional piece of PEM membrane electrode thickness increases by 8.2mm)
- **Electrolytic effective area:**
PEM single membrane size: 50-50mm
PEM reaction area: 25*25mm-6.25cm²
- **Hydrogen purity: 99.9998%**
(Depending on the ambient temperature and condensate temperature, as well as the content of dissolved gas in the make-up water, the parameters will vary.)
- **Hydrogen output:30-270ml/min**

Current and Hydrogen Output List

	current density (Alt)	0.64	0.80	0.96	1.12	1.28	1.44
model	Constant current A Voltage	4	5	6	7	8	9
H07-01	1.8-3.5Vmax	30	37.5	45	52.5	60	67.5
H07-02#	3.6-7.0Vmax	60	75	90	105	120	135
H07-03#	5.5-10Vmax	90	112.5	135	157.5	180	202.5
H07-04#	7.3-13.5Vmax	120	150	180	210	240	270

CO2 electrolyzer

Anode : IrO₂
Cathode : Ag, copper etc
Membrane : nafion membrane
Hardware : Titanium based



Our premium line of products includes Digital and Mixed Signal



- Oscilloscopes
- Spectrum Analyzers and
- RF Signal Generators
- Arbitrary waveform Generators
- Sensitive Measurement Products
- Data Acquisition Systems



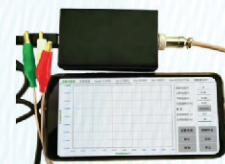
- ProgrammableDC
- AC Electronic Load
- Programmable DC AC Power Supply
- BatterySimulator
- Battery Test System
- Quick Charger
- DC-DCConverter
- Solar ArraySimulator
- AC & DC Charging Station

Portable Electrochemistry Workstation Model

DTL star S-200X Series Portable Electrochemical Analyzer
Ranging Started From : 1,51,200

Product Features:

- Small and light, easy to install, suitable for a variety of scientific research application scenarios.
- Provides a variety of selectable current ranges;n.
- A wider current and voltage range.
- Requires independent power supply

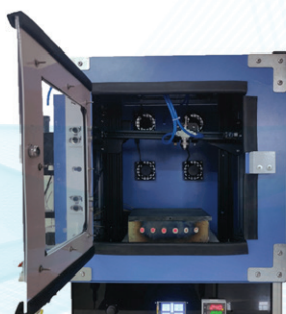


Neware Battery Tester

Application	Single cell: coin cell, pouch cell, cylindrical cell, prismatic cell, super-capacitor
	Battery pack: cylinder battery pack, prismatic battery pack, pouch battery pack
Channels	2/4/8/16/32/128/256/512 channels
Voltage	5V/10V/60V/100V,etc.
Current	10mA/20mA/50mA/100mA/ 1A/3A/6A/10A/30A/50A etc.



Spray Pyrolysis System/Thin Film Deposition



- **Precise thin-film deposition capability**
- **Sophisticated spray system** for fine droplet atomization
- **Uniform coating** on complex geometries
- **Servo-controlled X-Y stage** for broad motion range and accurate placement
- **Multi-nozzle configuration** supporting variable spray rates and droplet sizes
- **Integrated heating stage** for immediate drying and curing
- **Precise temperature control** for thermal history customization

Electrochemical Workstation (Potentiostat/Galvanostat/Impedance Analyzer)

Squidstat Plus (Make: Admiral Instruments, USA)

- Channels Per Unit 1
- Operating Modes: Pot/Gal/ZRA
- Cell Connections: 2, 3, 4, or 5 electrode
- Applied Potential Range: ± 10 V
- Maximum Current: 1 A
- Applied Potential Resolution: 15 μ V min
- Compliance Voltage: (12 V) per channel
- Measured Current Resolution: 3 pA max
- AC Frequency Range for EIS 10 μ Hz to 2 MHz





Why Choose Super Scientific Instruments?

At Super Scientific Instruments, we are committed to providing top-quality electrochemistry consumables that meet the highest industry standards. With years of expertise, we offer a wide range of reliable and precision-tested products designed to enhance your research and industrial applications. Our dedication to innovation, customer satisfaction, and competitive pricing sets us apart from the competition. Whether you need electrodes, reference solutions, or specialized accessories, we ensure fast delivery and exceptional technical support. Choose Super Scientific Instruments for unmatched quality, expert guidance, and a seamless purchasing experience. Your success is our priority!



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