Detailed Specifications of PEC H-Cell

BASi

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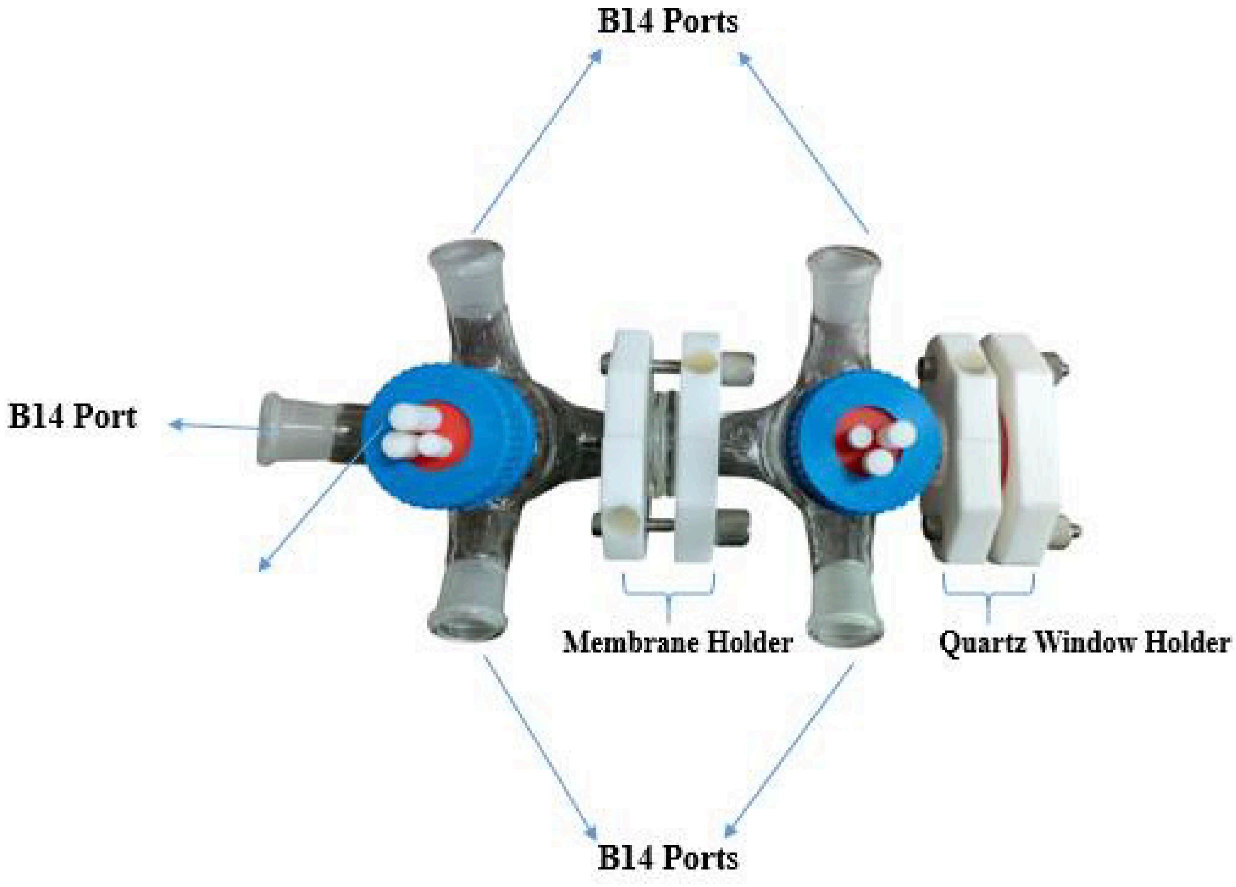
A Photo electrochemical consists of two compartments, typically separated by an ion-exchange membrane, allowing for isolated environments for the anode and cathode reactions.

It features a working electrode, often a semiconductor-based photo electrode that absorbs light to drive electrochemical reactions, along with a counter electrode, usually made of platinum or carbon, to complete the circuit. A reference electrode may also be included for precise potential measurements.

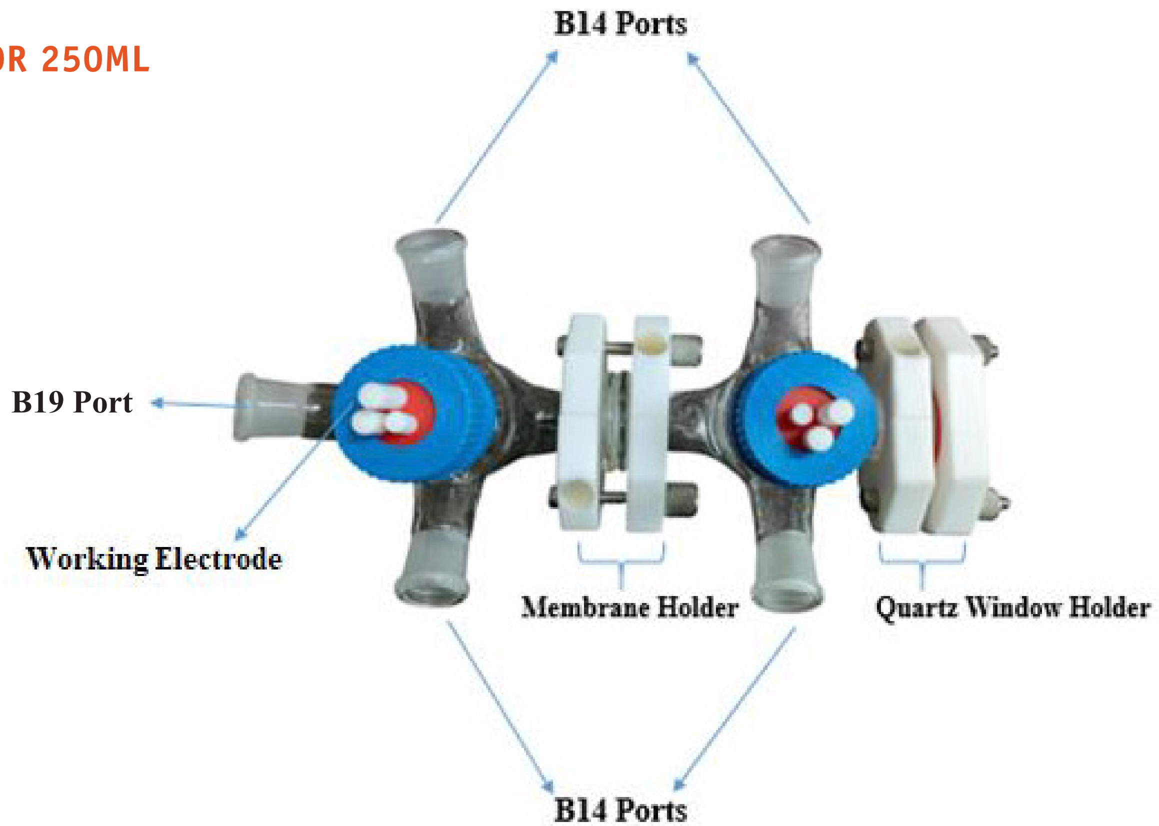
The cell is designed with a transparent quartz window to enable light exposure, facilitating photo-driven processes such as water splitting. It operates with a liquid electrolyte, which can be acidic, neutral, or alkaline, to support ion transfer. These features make PEC H-Cells essential for studying light-induced electrochemical reactions, particularly in applications like solar water splitting, photo catalysis, and renewable hydrogen production.

Available: *25mL, 50mL, 100mL up to 1000mL capacities.*

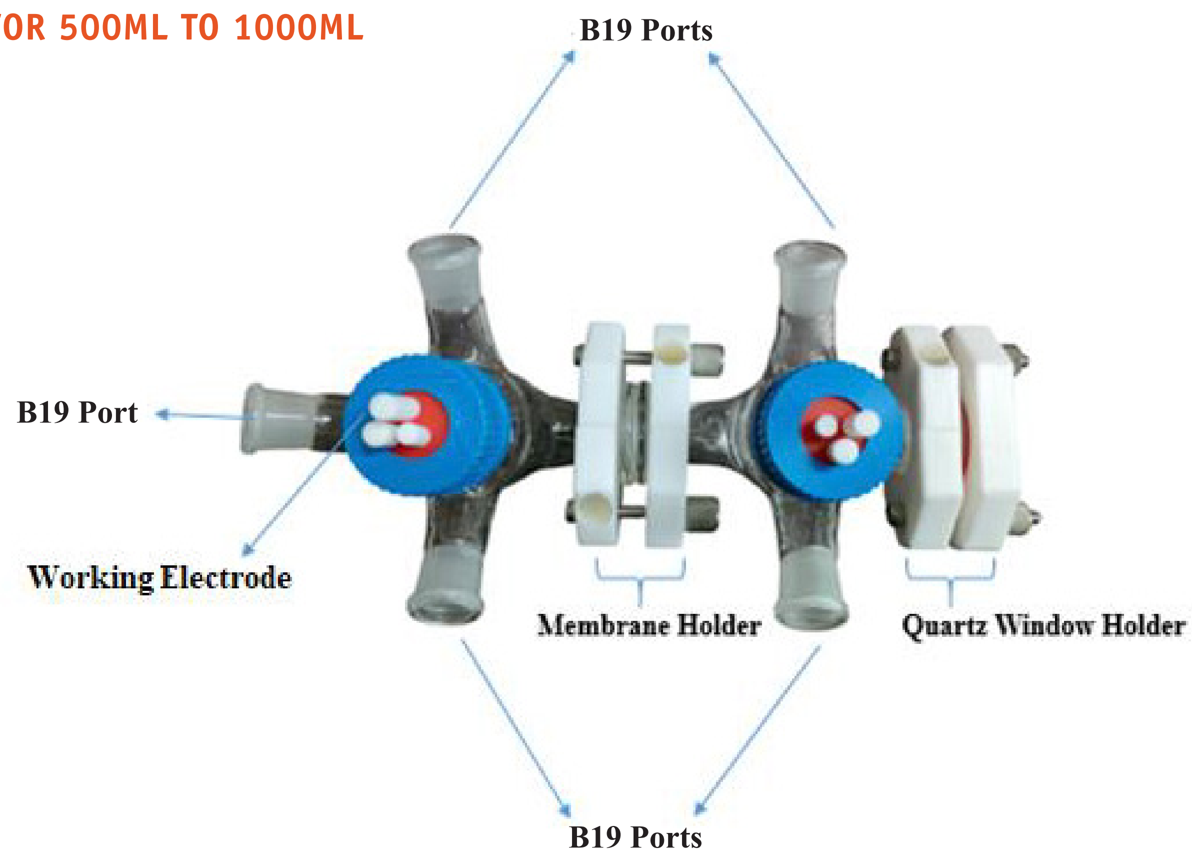
FOR 25ML TO 200ML

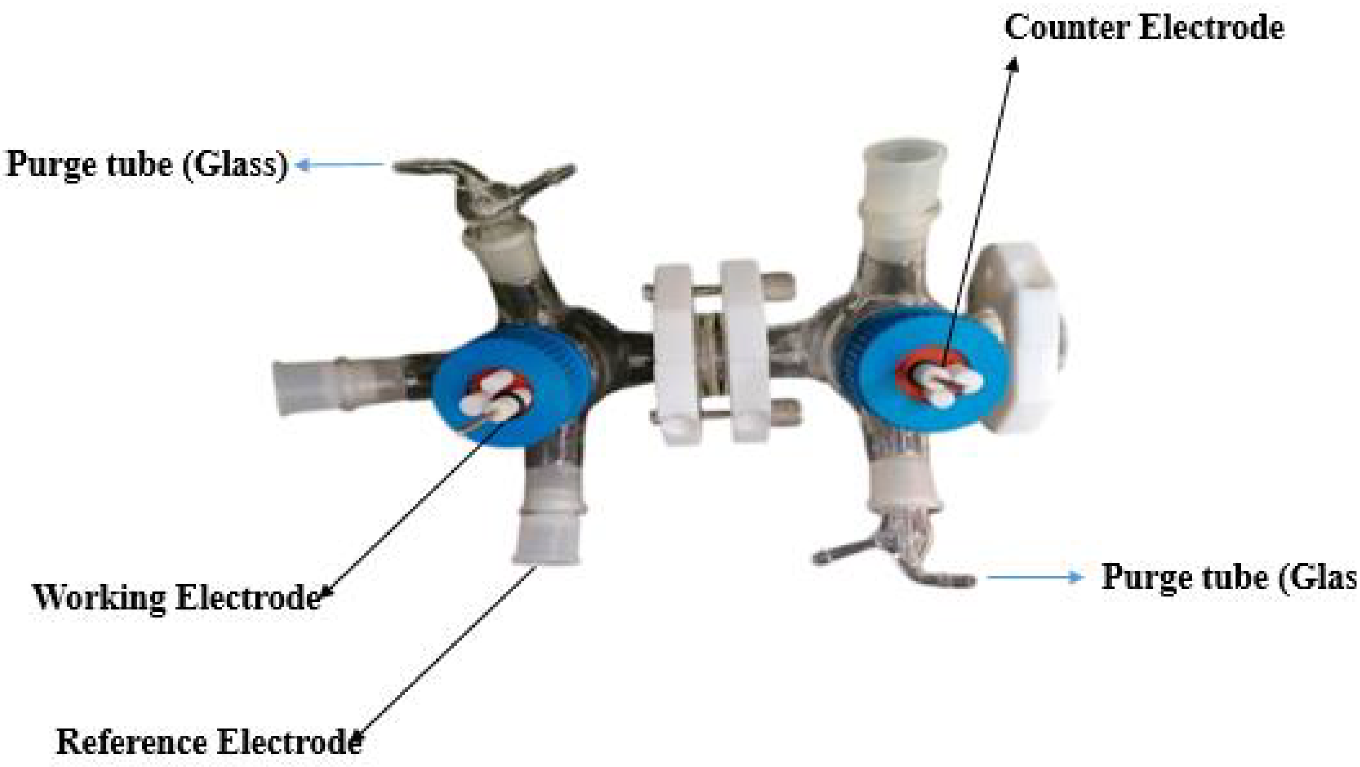


FOR 250ML



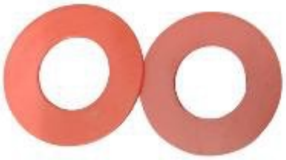
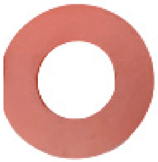
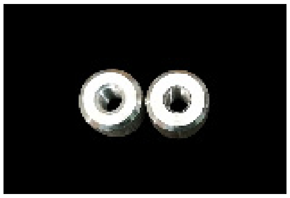
FOR 500ML TO 1000ML




Counter Electrode
Purge tube (Glass)
Working Electrode
Reference Electrode
Purge tube (Glas


Quartz Window

TECHNICAL SPECIFICATIONS

Includes	EC H-Cell 50ml	EC H-Cell 100ml	EC H-Cell 250ml	EC H-Cell 500ml	EC H-Cell 1000ml	Images
Part No:	ipgi_PEC HC50	ipgi_PEC HC100	ipgi_PEC HC250	ipgi_PEC HC500	ipgi_PEC HC1000	
Glass Reservoir With 3 side port	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Spacer (silicon) ID 0.63 inch, OD 1.4 inch, 0.04-inch-thick (ID 16mm, OD 35mm, 1mm thick)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Spacer (silicon) for Quartz 0.79 inch, OD 1.4inch/ ID 20mm, OD 35mm)	1 No	1 No	1 No	1 No	1 No	
Quartz (0.08 inch (2mm) thick	1 No	1 No	1 No	1 No	1 No	
Screw (SS 304)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Grip Nut (SS 316)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	

TECHNICAL SPECIFICATIONS

Includes	EC H-Cell 50ml	EC H-Cell 100ml	EC H-Cell 250ml	EC H-Cell 500ml	EC H-Cell 1000ml	Images
Purger (Glass)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Teflon Support for holder (PTFE)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Teflon Support holder (PTFE) for Quartz window	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Top Dummy (silicon)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Top Dummy 3 hole (silicon)	02 Nos	02 Nos	02 Nos	02 Nos	02 Nos	
Plugs Dummy (Teflon)	06 Nos	06 Nos	06 Nos	06 Nos	06 Nos	

TECHNICAL SPECIFICATIONS

Includes	EC H-Cell 50ml	EC H-Cell 100ml	EC H-Cell 250ml	EC H-Cell 500ml	EC H-Cell 1000ml	Images
Lugging Capillary for Reference Electrode	-	-	01 No B19	01 No B19	01 No B19	
Silicon septa with 4mm hole (03 Nos and without hole (03 Nos)	06 Nos B14 septa	06 Nos B14 septa	06 Nos B14 septa	06 Nos B19 septa	06 Nos B19 septa	
Approximate Weight (Full Setup)	450 Grams	550 Grams	700 Grams	1000 Grams	1500 Grams	

1. SOLAR WATER SPLITTING (HYDROGEN AND OXYGEN EVOLUTION REACTIONS - HER & OER)

> The cell is used to investigate materials that can split water into hydrogen and oxygen using sunlight.
> Semiconductor photo electrodes (e.g., TiO_2, $BiVO_4$, Fe_2O_3, or perovskites) are studied for their ability to efficiently drive hydrogen production.

2. PHOTO CATALYSIS AND ENVIRONMENTAL APPLICATIONS

> Used to study light-driven degradation of pollutants in water.
> Helps in developing photo catalysts for wastewater treatment and CO_2 reduction.

3. MATERIAL TESTING AND SEMICONDUCTOR STUDIES

> Used to test new photo electrode materials for efficiency and stability in solar fuel generation.
> Evaluates semiconductor band structures, charge transport properties, and corrosion resistance under light exposure.

4. FUEL CELLS AND ELECTROCHEMICAL ENERGY STORAGE

> Research on light-assisted electrochemical processes in next-generation batteries and fuel cells.
> Studies photo electrochemical reactions that could improve energy storage technologies.

SETUP FOR PEC H-CELL

STEP 1: PREPARING ELECTRODES

> Working Electrode (WE): A semiconductor material (e.g., $BiVO_4$, Fe_2O_3, TiO_2) is deposited onto FTO (Fluorine-doped Tin Oxide) glass.
> Counter Electrode (CE): Platinum or carbon-based material is cleaned and positioned in the opposite chamber.
> Reference Electrode (RE): Inserted in the anode or cathode chamber.

STEP 2: FILLING THE ELECTROLYTE AND MEMBRANE PLACEMENT

> The electrolyte (e.g., 0.5 M H_2SO_4 for acidic conditions, 1 M KOH for alkaline) is added.
> The ion-exchange membrane (e.g., Nafion) is placed between the two chambers to allow selective ion transport.

STEP 3: LIGHT SOURCE ALIGNMENT AND CONNECTION TO POTENTIOSTAT

> The light source (solar simulator or Xenon lamp) is aligned with the quartz window to ensure uniform illumination of the photo electrode.
> Electrodes are connected to a potentiostat for applying voltage and measuring current responses.

Reach Your Potential

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