GAMRY INSTRUMENTS
Redefining Electrochemical Measurement

C3 PROZESS- UND ANALYSENTECHNIK

Euro Corrosion Cell

Cell Description

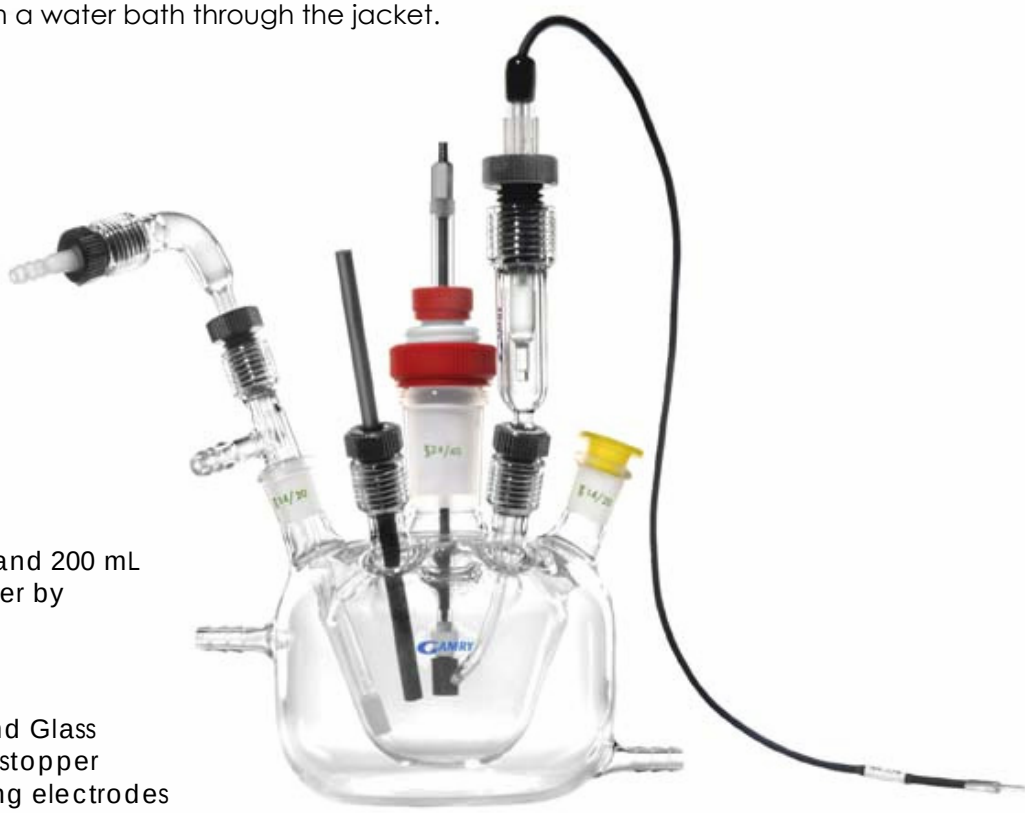
The Euro Corrosion Cell is a complete, ready-to-run electrochemical cell for corrosion measurements. The sample, usually a cylinder, is secured to a threaded steel rod. The Euro Corrosion Cell will accept any sample that can be drilled and tapped with a 3-48 thread. It's available in both (1) an unjacketed model and (2) a jacketed version to control the temperature of the electrochemical experiment.

The Euro Corrosion Cell was designed for experiments with electrolyte volumes from 50-200 ml. Traditionally, corrosion experiments are performed in a one-liter flask such as the Gamry CCK Corrosion Cell Kit, using electrolyte volumes of 750-900 ml. The practice of using large volumes has evolved from standardized procedures such as ASTM G5 for Potentiodynamic Anodic Polarization Measurements. There is no technical reason to employ high electrolyte volumes. High electrolyte volumes drive costs up and causes disposal problems.

A photo of the Euro Corrosion Cell is shown above. There are five ports: a 24/40 ground-glass joint, two #7 Ace-Threds, and two 14/20 ground-glass joints. The central 24/40 ground glass joint supports the cylindrical Working Electrode (your corrosion sample) in the Sample Holder. The Reference Electrode Bridge Tube and the Counter Electrode and the Bubbler are all mounted in the Ace-Threds, which allow them to be adjusted vertically to accommodate a wide range of sample volumes. The vertical adjustment is also handy to make sure your Reference Electrode Bridge Tube is placed close to the surface of your corrosion sample. The Bubbler is contained in the 14/20 joint and has one position for deaeration and another for blanketing. The Counter Electrode is a graphite rod. It is possible to include a bridge tube for the graphite rod to prevent products from the counter electrode from contacting products from the working electrode. It is also possible to use a platinum counter electrode. We included an additional 14/20 port for a thermometer or other accessory.

Cylindrical samples for the Euro Corrosion Cell can be fabricated in your lab or, for convenience, can be purchased directly from Metal Samples, a commercial supplier of corrosion samples for testing.

The jacketed version of the Euro Corrosion Cell is shown below. The temperature can be controlled by pumping thermostatted water from a water bath through the jacket.



Dimensions
Working Volume: Between 50 mL and 200 mL
Size: Approximately 10 cm diameter by
30 cm high (including electrodes)

Working Electrode Port
Type: 24/40 Standard Taper Ground Glass
Adaptor (S): 24/40 to 8 mm Teflon stopper
Adaptor (R): Taper plug for Rotating electrodes

Reference Electrode Port
Type: #7 Ace-Thread - includes a standard reference electrode bridge tube
Reference Electrode Diameter: 9-11.5 mm (when used with the bridge tube)
Bridge tube termination in electrolyte: Unfired Vycor® disk, 3.5 mm diameter

Counter Electrode Port
Type: #7 Ace-Thread
Counter electrode (S): 15 cm (6 in.) graphite rod
Counter electrode (R): 0.41 mm diameter platinum wire, approx 150 mm long, includes counter bridge tube

Gas Flow Port
Type: 14/20 - equipped with three way gas flow adapter (purge, blanket, vent)

Spare Port
Type: 14/20- supplied with several polyethylene stoppers

Chemical Compatibility
Wetted Materials: Pyrex®, PTFE, unfired Vycor®, ACE FETFE, Graphite (S), Platinum (R)
Non-Wetted Materials: Above, plus nylon, polypropylene, stainless steel

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