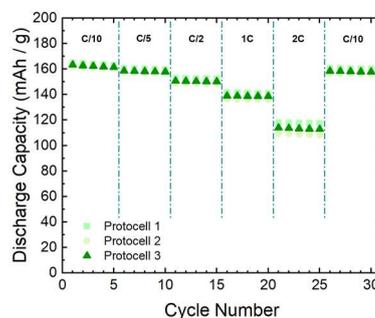
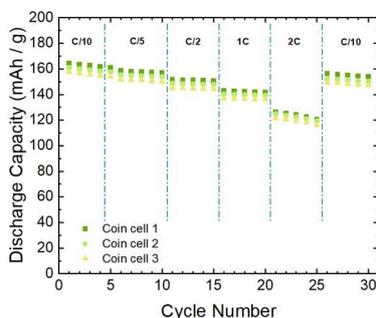
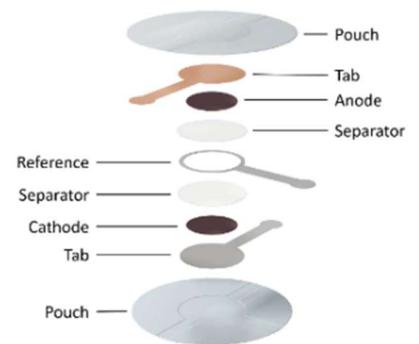
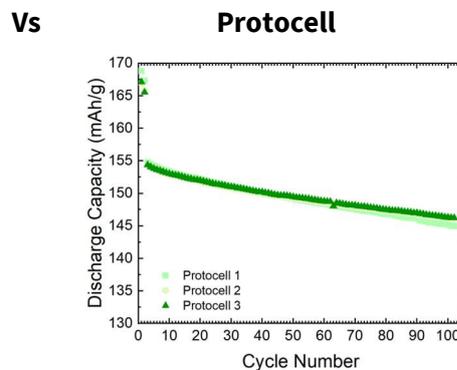
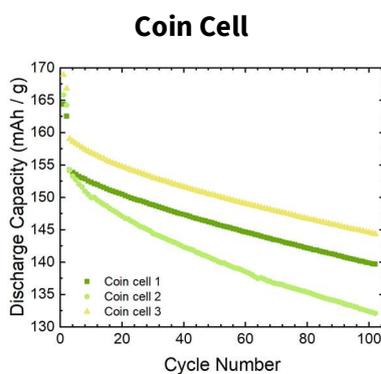


Protocells by Cellerate

Reliability, Precision & Flexibility for Battery Researchers

Protocells have been developed to replace coin cells as the de facto standard for small-format testing by bringing testing conditions closer to those of a single-layer pouch cell. This format maintains the convenience and material efficiency of coin cells while enabling precise control over stack pressure and electrolyte volume, as in a pouch cell. A reference electrode can also be easily incorporated, providing deeper insight into material performance.

Controlled stack pressure in Protocells leads to significantly improved consistency in data



Cellerate's Automated Cell Assembly System (CASS)

Graphite anode (NEI NANOMYTE BE-200E), NMC-622 cathode (NEI NANOMYTE BE 54E), Celgard separator, 1 M LiPF6 in EC:EMC (3:7) + 1wt.% VC [Solvionic]. Both coin cells and Protocells were assembled using the Cellerate CASS to remove the 'human factor'. Protocells tested under 0.4 MPa stack pressure.

Reference Electrode Flexibility

Choose from a range of readily available reference electrodes:

- ≡ Carbon Ring
- ≡ Gold Wire
- ≡ Lithium Ring
- ≡ LTO & LFP Coming Soon



Or make your own with our uncoated Al/Cu/Ni/SS reference electrodes.

Don't need a reference electrode? – Protocells can also be assembled with only two electrodes, allowing the flexibility and precision of the Protocell technology with your current test procedures.

Real World Testing

Combined with Cellerate's Protocell Pressure Jig, the Protocell can be tested using controlled, real-world, uniform stack pressures. This ensures high quality data that can transfer to future studies in larger pouch cell formats.



Setting a New Standard for Battery R&D

Protocells serve as a stepping stone between coin cell research and large-format pouch cell development, helping researchers transition their material discoveries towards commercial applications.

- Easily switch between making Protocells and coin cells with the same equipment, reducing lab space requirements.
- Protocells are transforming how the next generation of energy storage materials are tested, providing unprecedented control, accuracy, and reliability.

With their ability to enhance research consistency, improve failure analysis, and integrate into automated workflows, Protocells are a critical tool for accelerating battery innovation.

Technical Specifications

Pouch Material	110 μ m laminated aluminium
Electrode Compatibility	Standard coin cell-sized electrodes (10 mm – 17 mm)
Reference Electrode	Range of materials available. 17 mm ring, 16 mm inner diameter
Separator Size	Up to 19 mm
Tabs	17 mm contact area, 0.1 mm thick with hot-melt tape – no tab welding required
Sealing Method	Heat-sealed under vacuum

To learn more about Protocells, visit www.cellerate.co.uk

