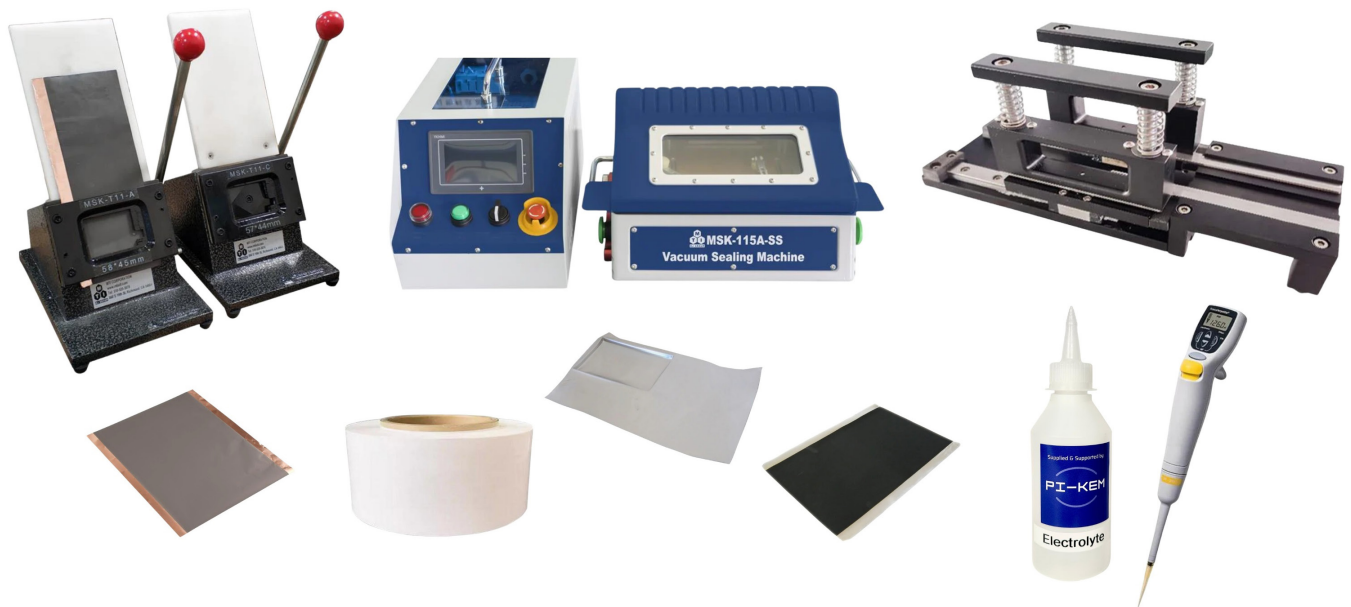


PI-KEM



POUCH CELL RESEARCH KITS

From Start-Up to Scale-Up



Product Overview

A BOND WORTH FORMING

WE ENABLE INNOVATION

For over 30 years we've been enabling you to accelerate your research and development, proudly partnering with the most innovative minds in the science and technology sectors.

We're purpose designed to support your science and technology innovation, and take your ideas from lab-based concepts to full-scale production.

With our capabilities and extensive expertise we're the partner of choice for custom manufacturing solutions and niche product sourcing through our trusted network of UK and international suppliers.

Specialising in the following areas:

- Energy Research
- Hydrogen Technology
- Photonics + Optoelectronics
- Thin Films + Nanotech
- Materials Processing + Testing
- RF Shielding
- Electroforming
- Specialist Metallic Coatings

Accelerate your journey. We are PI-KEM.

MICRO-INFO

- 30+ years supplying advanced materials and equipment
- Custom manufactured components
- Niche product sourcing
- Comprehensive range of standard stock products and consumables
- Call off purchase options
- Support from an expert scientific team
- Low minimum order quantity
- UK, European & global delivery

We offer a wide range of advanced materials and equipment which are available as standard or custom manufacture.

Within this catalogue are our most requested lines, however we welcome any enquiry for other specifications.

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Pouch Cell Research Kits

Start-Up	8-9
Intermediate	10
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Beyond your Purchase

PI-KEM supports you long after first setup:

- **Ongoing Support:** Access our full range of materials and consumables
- **Equipment Upgrades:** We support you as your research scales and your needs evolve.
- **Technical Expertise:** Our team are here to provide long-term support and application development.

Our Partner for Battery Research Equipment & Consumables

We distribute on behalf of MTI Corp, a leading manufacturer of scientific equipment, consumables and products for material science, analysis and new energy research.



Our Partners for Battery Research Materials

We distribute on behalf of leading specialist manufacturers within advanced materials and new energy research.



POUCH CELLS AN OVERVIEW

From first experiment
to repeatable results:
**your all-in-one
laboratory solution.**



Why Choose Pouch Cells?

- **Design Flexibility:** Customisable sizing or pre-formed cases available
- **High Energy Density:** Improved active material-to-packaging ratio vs. coin & cylinder cases
- **Thermal Management:** Large surface area-to-volume ratio for efficient thermal dissipation
- **Safety:** Pouch failure typically results in swelling vs. explosions associated with rigid cases
- **Scalable Processes:** Develop workflows, such as stacking and electrolyte injection, that directly translate to pilot and mass production
- **Validation of Concept:** A cost-effective pathway to accelerate the move from R & D to commercial production

The Research Pathway

PI-KEM supports every stage of your battery journey, from initial discovery to pilot production

DISCOVERY

New material
synthesis & chemical
formulation

COIN CELLS

Rapid performance
testing & validation

SCALING

Transitioning to
Pouch or Cylinder
formats

PILOT LINE

Small-scale
pre-commercial
production

POUCH CELL KITS

From first experiment to repeatable results - everything your lab needs in one package.



Complete material, equipment & consumable sets



Single-source supply, designed to work together



Supports repeatable assembly every time



Suits Li-ion, Na-ion, solid state & more



Flexible for lab size or budget



Standardise equipment across teams & projects

Why Choose a PI-KEM Pouch Cell Kit?

Reliable equipment & quality consumables, selected to help you achieve your research goals

- **Integrated solutions:** Reducing compatibility risks and streamlining procurement
- **Application specific:** Work with our team to specify kit configurations aligned with your chemistry, budget, and research objectives
- **Research Continuity:** As your research evolves, your supply chain doesn't need to
- **Specialised Technical Guidance:** Support throughout the entire journey from lab based to complex automated high-throughput systems
- **Glove Box / Dry Room:** Suitable for cell fabrication within a controlled atmosphere
- **Onsite Training and Set-up:** Ensuring users achieve safe operation and consistent, repeatable results

Backed by Expertise: Access proven battery R&D knowledge to help you build reliable, repeatable workflows



POUCH CELLS KITS

PRODUCT RANGE COMPARISON

Comprehensive technical overview and specification matrix across the PI-KEM Pouch Cell Kits:

Feature	O1 START-UP ¹ (Equipment & Materials)	O2 INTERMEDIATE ¹ (Equipment & Materials)
Actuation / Operation	Manual	Manual
Starting Cost (Ex Works)	From £14,500	From £40,000
Primary Focus & Throughput	Entry level R&D; low-volume manual assembly	Growing R&D
Electrode Sourcing	Pre-cut included in Option A Uncut included in Option B	Uncut included
Configuration Options	Standard Kit	Customisable

¹ Kit includes the materials and consumables required to assemble up to 50 working pouch cells. Replacement consumables and materials are available separately, allowing you to continue production without purchasing another kit.

² Onsite installation and training is recommended

Pricing Information

Prices shown are starting prices and are correct at the time of printing. They are provided as a guide only and may change without notice. Final pricing may vary depending on product specification, order quantity, availability and market conditions. Please contact our team for a current quotation.



03 HIGH THROUGHPUT ^{1 2} (Semi-Automatic equipment only)	04 FULLY AUTOMATED ² (Equipment only)
Scaled / Electrode Prep	Fully Automated
From £125,000	Contact for Quote
Pilot-scale production. Creating & preparing electrodes at scale	Industrial pilot-line: automated, high-output
Custom mixed & fabricated by user	Automated handling of user/pre-cut materials
Customisable	Customisable

“Our technical collaboration with PI-KEM has been excellent so far. Thanks to their strong support, we were able to refine the details of the solutions we were interested in.”

Kamil Frączek

Leader of the Chemical Power Sources Research Area

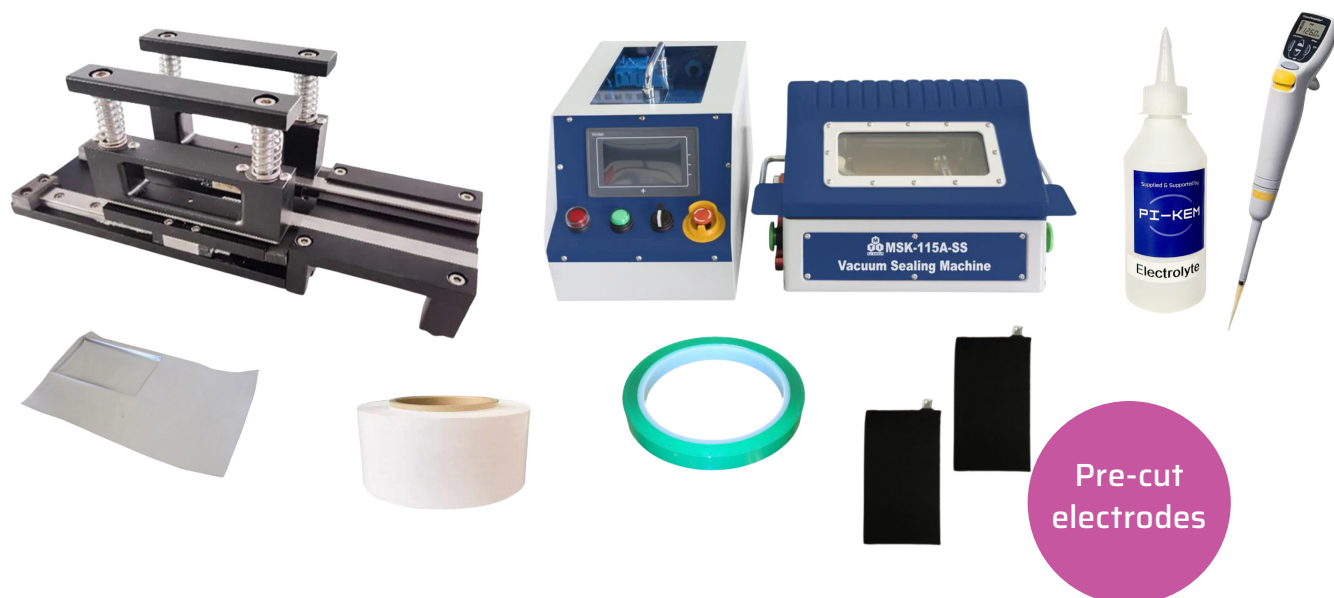
Łukasiewicz Research Network

Institute of Non-Ferrous Metals Centre for Electrochemical Energy Storage

01 START-UP - Option A

From £14,500 Ex Works

Pre-cut, coated anode and cathode materials included to make up to 50 working single-layer pouch cells. Contents based on Li-ion - other chemistries e.g. Na-ion also available



- Ideal for:**
- Scaling research
 - Teaching laboratories
 - Undergraduate & postgraduate practical courses
 - New battery research groups

Contents:

Qty

Equipment

Manual Stacking Holder for Single-Layer or Multiple-Layer Pouch Cells (L 62 x W 46 mm)	1
Precision Electronic Single Channel Pipette: 20 - 200uL with Battery & Charger	1
Mini 4-in-1 Vacuum Sealer for Pouch Cell (100x100x12 mm Max.) Antechamber Acceptable	1

Materials

Electrolyte: 1M LiPF ₆ in EC:EMC (3:7)	200g
LiFePO ₄ (LFP) Coated Aluminum Foil as Cathode Electrode (Pre-cut Sheet) for Li-Ion Battery	50pcs
Graphite Dry Electrode (Pre-cut Sheet) with High Loading (18.9-27.4 mg/cm ²) for Li-Ion Battery	50pcs

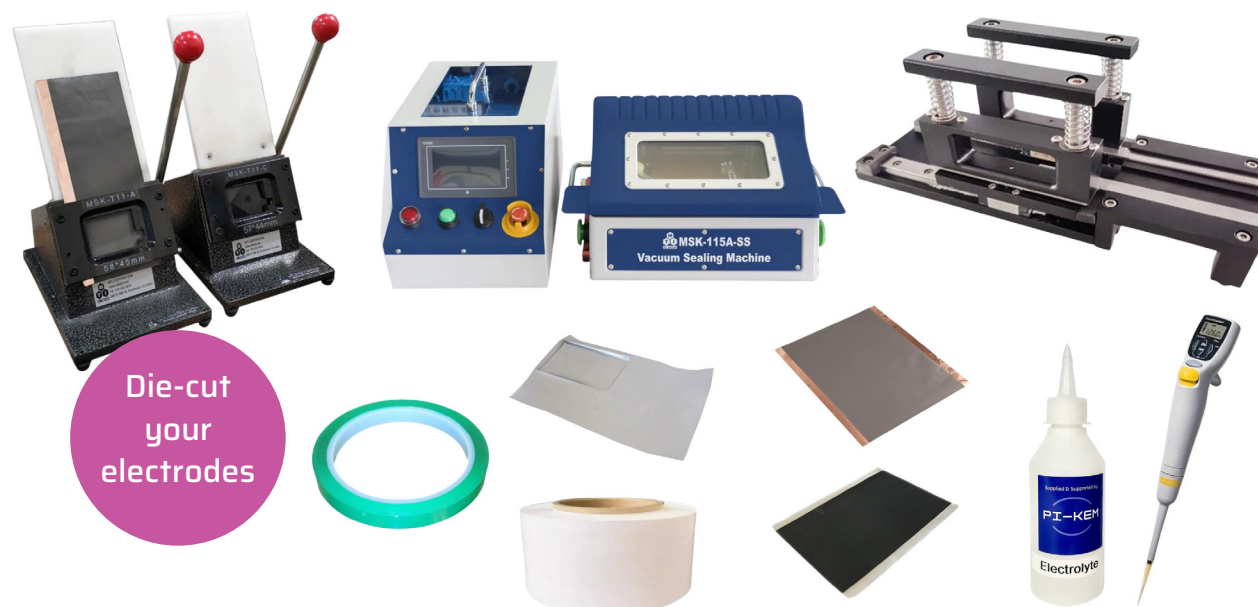
Consumables

Formed 4662 Pouch Cell Case, L 62mm x W 46mm x T 1mm	50pcs
PP Battery Separator Roll by Dry Method (60 mm W x 25 um T)	800m
Strapping Tape	200m

01 START-UP - Option B

From £15,500 Ex Works

Uncut, pre-coated anode and cathode materials, plus consumables, with manually operated equipment to make up to 50 working single-layer pouch cells. Contents based on Li-ion - other chemistries e.g. Na-ion also available



Ideal for:

- Scaling research
- Teaching laboratories
- Undergraduate & postgraduate practical courses
- New battery research groups

Contents:

Qty

Equipment

Manual Die Cutters for Pouch Cell Electrodes (57x44 & 58x45)	1 Pair
Manual Stacking Holder for Single-Layer or Multiple-Layer Pouch Cells (L 62 x W 46 mm)	1
Precision Electronic Single Channel Pipette: 20 - 200uL with Battery & Charger	1
Mini 4-in-1 Vacuum Sealer for Pouch Cell (100x100x12 mm Max.) Antechamber Acceptable	1

Materials

Electrolyte: 1M LiPF ₆ in EC:EMC (3:7)	200g
Li-Ion Battery Cathode - Aluminum Foil Single Side Coated by LiFePO ₄	5 Sheets
Li-Ion Battery Anode - Single Layer CMS Graphite Coated on Cu Foil	5 Sheets

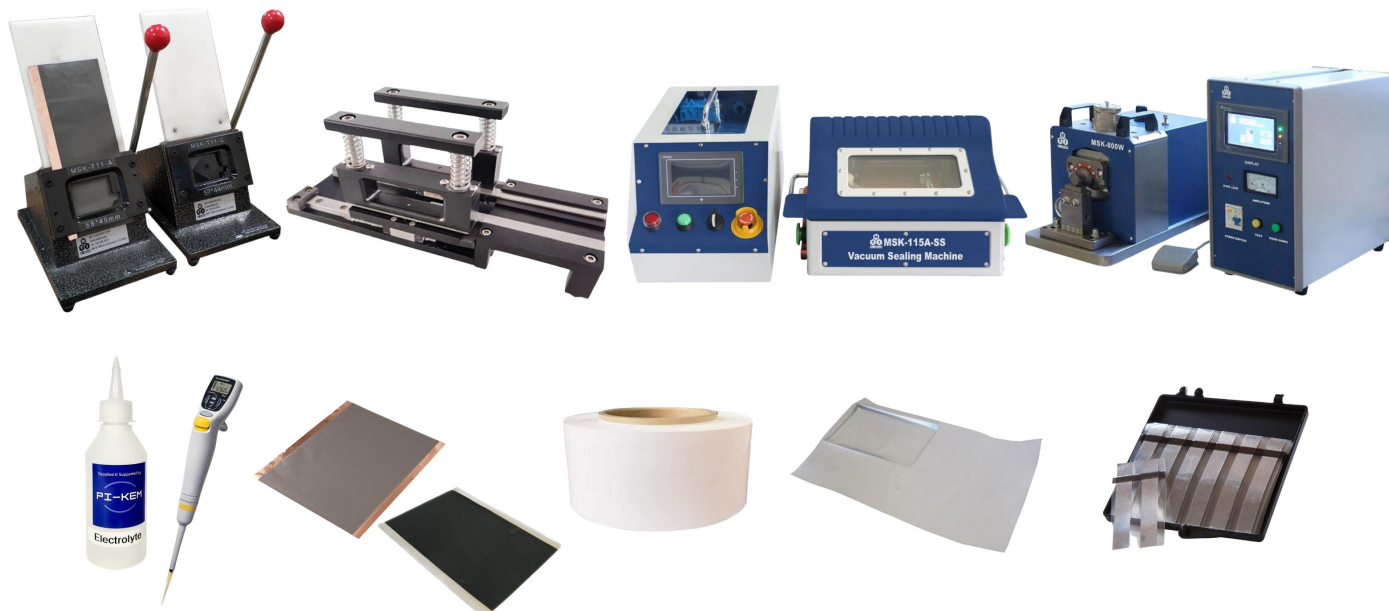
Consumables

Formed 4662 Pouch Cell Case, L 62mm x W 46mm x T 1mm	50pcs
PP Battery Separator Roll by Dry Method (60 mm W x 25 um T)	800m
Strapping Tape	200m

02 INTERMEDIATE

From £40,000 Ex Works

Manually operated equipment plus consumables and pre-coated materials to make up to 50 working multi-layer pouch cells. Contents based on Li-ion - other chemistries e.g. Na-ion also available



- Ideal for:**
- Growing R&D teams
 - Regular testing programmes
 - Multi-user laboratories
 - Expanded development work

Contents:

Qty

Equipment

Manual Die Cutters for Pouch Cell Electrodes (57x44 & 58x45)	1 Pair
Manual Stacking Holder for Single-Layer or Multiple-Layer Pouch Cells (L 62 x W 46 mm)	1
Precision Electronic Single Channel Pipette: 20 - 200uL with Battery & Charger	1
Mini 4-in-1 Vacuum Sealer for Pouch Cell (100x100x12 mm Max.) Antechamber Acceptable	1
Desk-Top 800w Ultrasonic Metal Welder with Touch-Screen Digital Controller, 40KHz	1

Materials

Electrolyte: 1M LiPF6 in EC:EMC (3:7)	200g
Li-Ion Battery Cathode - Aluminium Foil Double Side Coated by LiFePO4	10 Sheets
Li-Ion Battery Anode - Double Sided CMS Graphite Coated on Cu Foil	10 Sheets

Consumables

Formed 4662 Pouch Cell Case, L 62mm x W 46mm (choose from Thickness 1, 2, 3, 4, 5 or 6mm)	50pcs
PP Battery Separator Roll by Dry Method (60 mm W x 25 um T)	800m
4mm Aluminium Tabs	50pcs
4mm Nickel Tabs	50pcs

03 HIGH THROUGHPUT

From £125,000 Ex Works

All materials, components and equipment to make up to 50 working pouch cells, using semi-automatic operating equipment. Contents based on Li-ion - other chemistries e.g. Na-ion also available



Further details
over page...

03 HIGH THROUGHPUT Continued

- Ideal for:**
- Scaling research
 - Increasing throughput
 - Multi-layer pouch cells
 - Reducing manual handling

Contents:	Qty
Equipment	
Desk-Top Dual-Shaft Planetary Vacuum Mixer w/ Optional Containers (50-500ml) up to 600 RPM	1
Compact Tape Casting Coater w/ Vac. Chuck (200Wx365L mm) & Film Applicator & Optional Heater	1
100C Max. 4" Width Electric Hot Rolling Press with Variable Speed (Air Gas Compatible)	1
25 L 200 °C Vacuum Oven (12" x 12" x 11")	1
Compact & Precision Pneumatic Die Cutter with A Pair Die for Pouch Battery Research	1
High Energy 3D Ball Mill with Optional Jars	1
Compact Pouch Cell Case Forming Machine for Aluminum-Laminated Films w/ Optional Die	1
Semi-Auto Stacking Machine for Pouch Cell Electrodes	1
Desk-Top 800W Ultrasonic Metal Welder with Touch-Screen Digital Controller, 40KHz	1
Compact Vacuum Electrolyte Injection System for Pouch Cells	1
4-in-1 Sealer for Top/Side & Vacuum Standing, Sealing, & Purging for Pouch Cell (180x160mm)	1
Materials	
Electrolyte: 1M LiPF ₆ in EC:EMC (3:7)	200g
Natural Graphite Powder for Li-ion Battery Anode	200g
Carboxymethyl Cellulose (CMC) for Li-ion Battery Anode	100g
Styrene-Butadiene Rubber (SBR) Binder for Li-ion Battery Anode	500g
Super P Conductive Carbon Black	80g
LiFePO ₄ (Lithium Iron Phosphate, LFP) Powder for Li-ion Battery Cathode	150g
PVDF Binder for Li-ion Battery Electrodes	80g
SUPER C45 Conductive Carbon Black as Conductive Additive for Lithium-Ion Batteries	30g
Consumables	
Aluminum Laminated Film for Pouch Cell Case (7.5m L x 480mm W)	1 Roll
PP Battery Separator by Dry Method (800m L x 60 mm W x 25 um T)	1 Roll
4mm Aluminium Tabs	50pcs
4mm Nickel Tabs	50pcs
Aluminum Foil for Battery Cathode Substrate (350m L x 180 mm W x 15 um T)	1 Roll
Copper Foil for Battery Anode Substrate (310m L x 180mm W x 9µm T)	1 Roll

For R&D laboratories, QA laboratories, and pre-production testing - giving repeatability and consistency.

Option A: Lab-Scale Automatic Multiple-Layers Pouch Cell Assembly Line

A lab-scale automatic assembly line for multiple-layer pouch cell fabrication, which can realise the whole automatic process of electrode stacking to electrolyte injection and cell sealing. The frame cover connected with a dehumidifier is able to provide a low dew point of -50 degrees centigrade for humidity-sensitive electrode or electrolyte development.

Available as

- Equipment only
- Equipment + Drybox
- Equipment + Dryroom
- Equipment + Glovebox

Units

- Automatic Stacker
- Automatic Taping Machine
- Automatic Welder
- Automatic Top/Side Sealer
- Automatic Electrolyte Filling & Vacuum Dealing Machine
- Four-Axis and Six-Axis Robot Arm



Ideal for:

- Bridging between lab research & industrial production
- Evaluation of various battery materials, new battery development, and small or pilot-scale batch production of pouch cell

Option B: Fully Automatic Pouch Cell Assembly Line

An automatic pilot line for pouch cell production, which can realise the full automatic process of electrode rolls to electrolyte injection and cell sealing. .

Units

- Auto Cutter
- Auto Stacker
- Auto Welder/Taper
- Auto Case Former and Top/Side Sealer
- Auto Electrolyte Injector
- Auto Gas Tightness Tester
- Auto MES Unit



Ideal for:

- Bridging between lab research & industrial production
- Evaluation of various battery materials, new battery development, and small or pilot-scale batch production of pouch cell

More Than Pouch Cell Kits

Building a pouch cell is only one part of your research.

Reliable results depend on having the right materials, equipment and technical support at every stage.

Whether you're preparing electrodes, assembling cells, testing performance or scaling your research, PI-KEM provides the products and expertise to help keep your project moving.

Explore the complete battery research range:

Pouch Cell Consumables – Everything you need for consistent cell assembly.

Battery Materials – Electrodes, foils, powders, electrolytes, separators and more.

Electrode Fabrication Equipment – Coat, press, cut and prepare samples.

Cell Assembly Equipment – Tools & equipment for accurate, repeatable assembly.

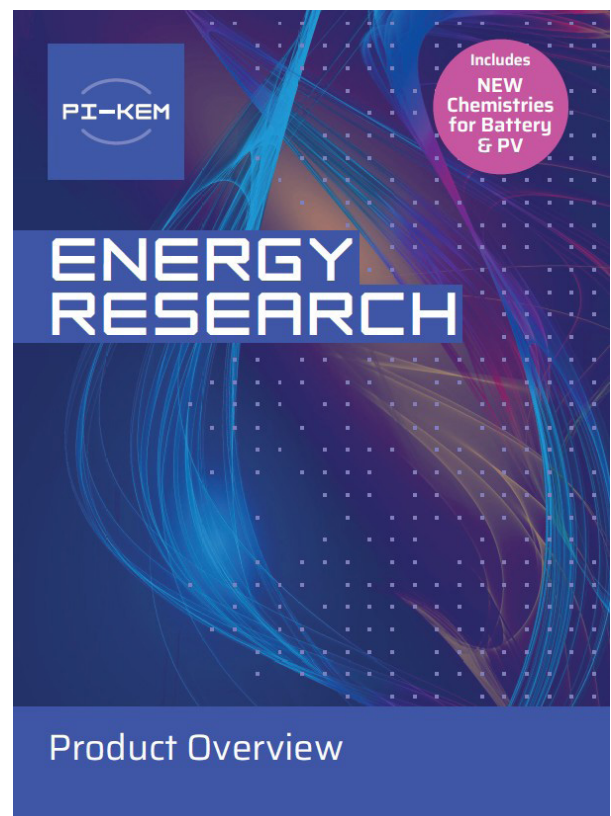
Testing & Characterisation – Equipment to evaluate battery performance.

Laboratory Equipment – Supporting equipment for efficient battery research.

From conversation to completion, we're here to help you find the right products for every stage of your battery research.

Looking for More?

Browse our complete Energy brochure and discover products for every stage of battery research.





Ready to equip your lab?

Our team works with university researchers and commercial R&D organisations to specify the right kit for your goals, budget, and chemistry.

Collaboration · Partnership · Long-term Relationships

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Version 02. 08.2026