

CELL FABRICATION FACILITY

Argonne's On-Site Battery Production Lab

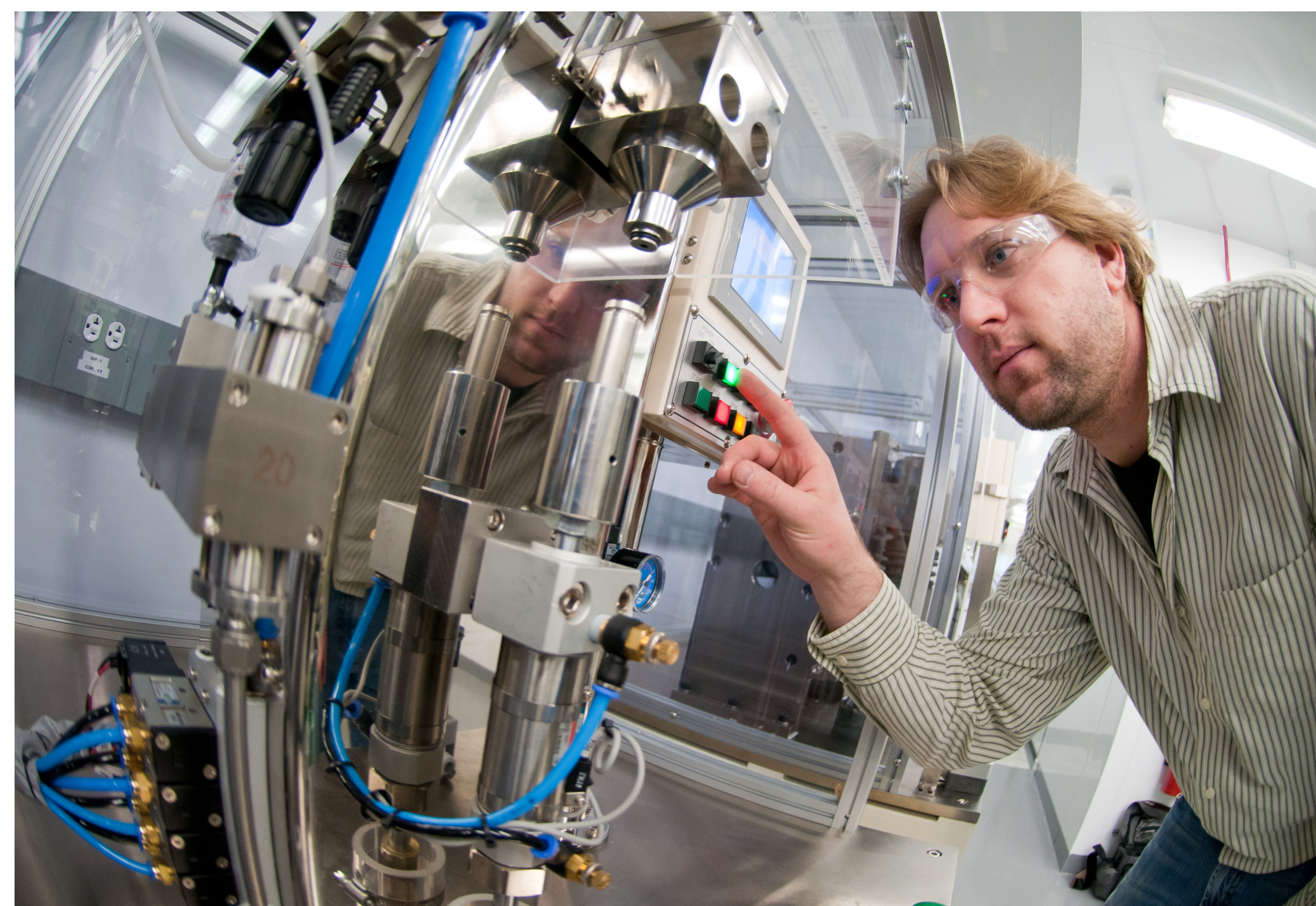
Did you know...

Moisture can destroy a lithium-ion battery by causing the electrolyte to become acidic. Thus, these batteries must be fabricated in a climate-controlled environment.

OPPORTUNITY

In the past, Argonne researchers were only able to fabricate small coin cells using laboratory gloveboxes (sealed units that allow researchers to handle materials in a contained environment). When Argonne wanted to create larger prototypes for more detailed testing, the laboratory was forced to go to battery manufacturers for the production of pouch and 18650 cells. However, for the fabrication process to be worthwhile, manufacturers required large quantities of the experimental materials to produce the prototype cells, which was not cost effective or convenient.

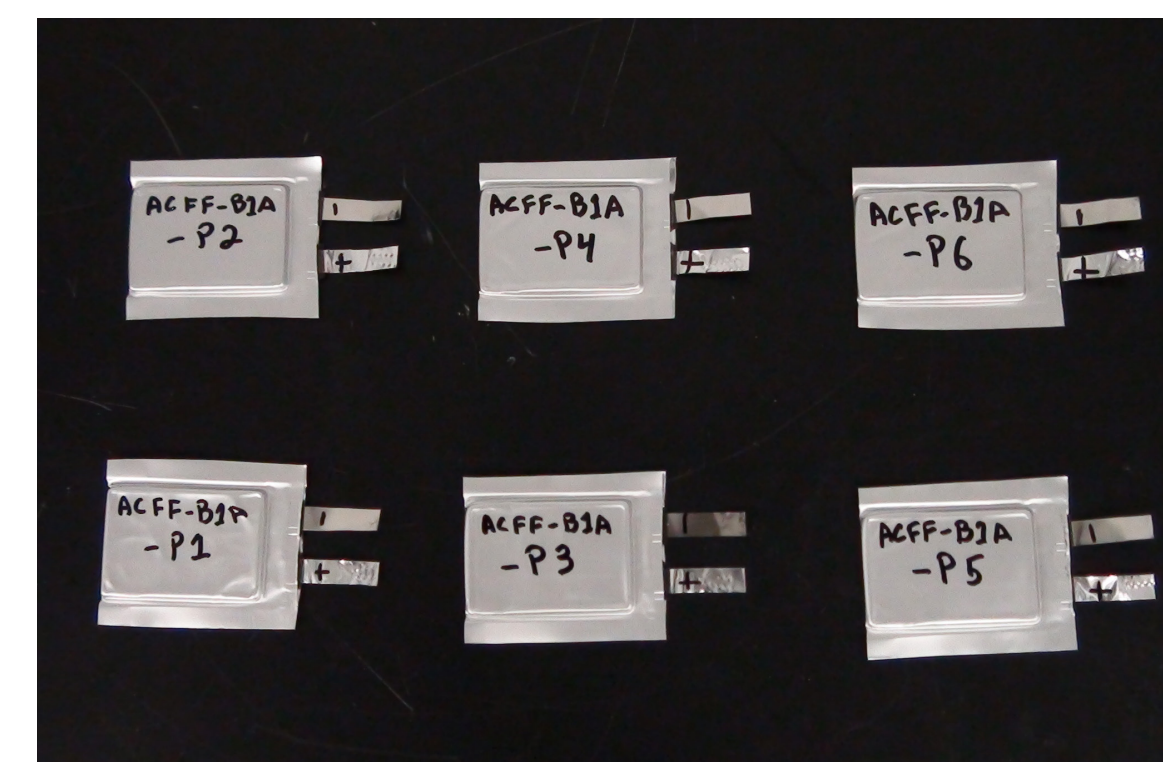
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Argonne process engineer Bryant Polzin fills an 18650 lithium-ion battery cell with electrolyte using semi-automated equipment at Argonne's Cell Fabrication Facility.

SOLUTION

Argonne's new Cell Fabrication Facility lets scientists manufacture battery cells (both pouch and 18650 cells) and battery electrodes for their own research. Outfitted with state-of-the-art pilot-scale production equipment, the climate-controlled facility is one of a few of its kind in this country. A specialized air handling system constantly monitors the humidity of the room and guarantees a dew point below -42°C with up to six people working inside it.



The facility allows researchers to fabricate pouch cells (left) and 18650 cells (right) for further evaluation.

BENEFITS

Having the capability to make prototype cells allows Argonne scientists to evaluate novel battery chemistries in a more practical and timely manner. After fabrication, the prototype cells are tested for performance, battery life and safety in Argonne's state-of-the-art battery testing facilities: the Electrochemical Analysis and Diagnostics Laboratory and the Battery Post-Test Facility.



Argonne engineering assistant Steve Trask operates a state-of-the-art electrode coating system to make the positive electrode used in prototype lithium-ion cells.

