

BATTERY MATERIALS BRIDGING THE GAP BETWEEN RESEARCH AND COMMERCIALIZATION

Scale-Up R&D

Did you know...

Scientists working to invent new battery chemistries typically do not need large amounts of materials to work with, but companies that want to manufacture a new material do. Scale-up R&D involves taking a laboratory-developed procedure and modifying it to enable safe and economical commercial-scale production.

OPPORTUNITY

The scale-up of specialty battery materials is no small feat. Unlike the doubling or tripling of a cake recipe, it is not a matter of multiplying the amount of a chemical formulation by 1,000 or 10,000 or more to make larger quantities of a material. Factors like time, temperature, concentration and mixing speeds can all change, and issues not seen in initial laboratory experiments may surface.

SOLUTION

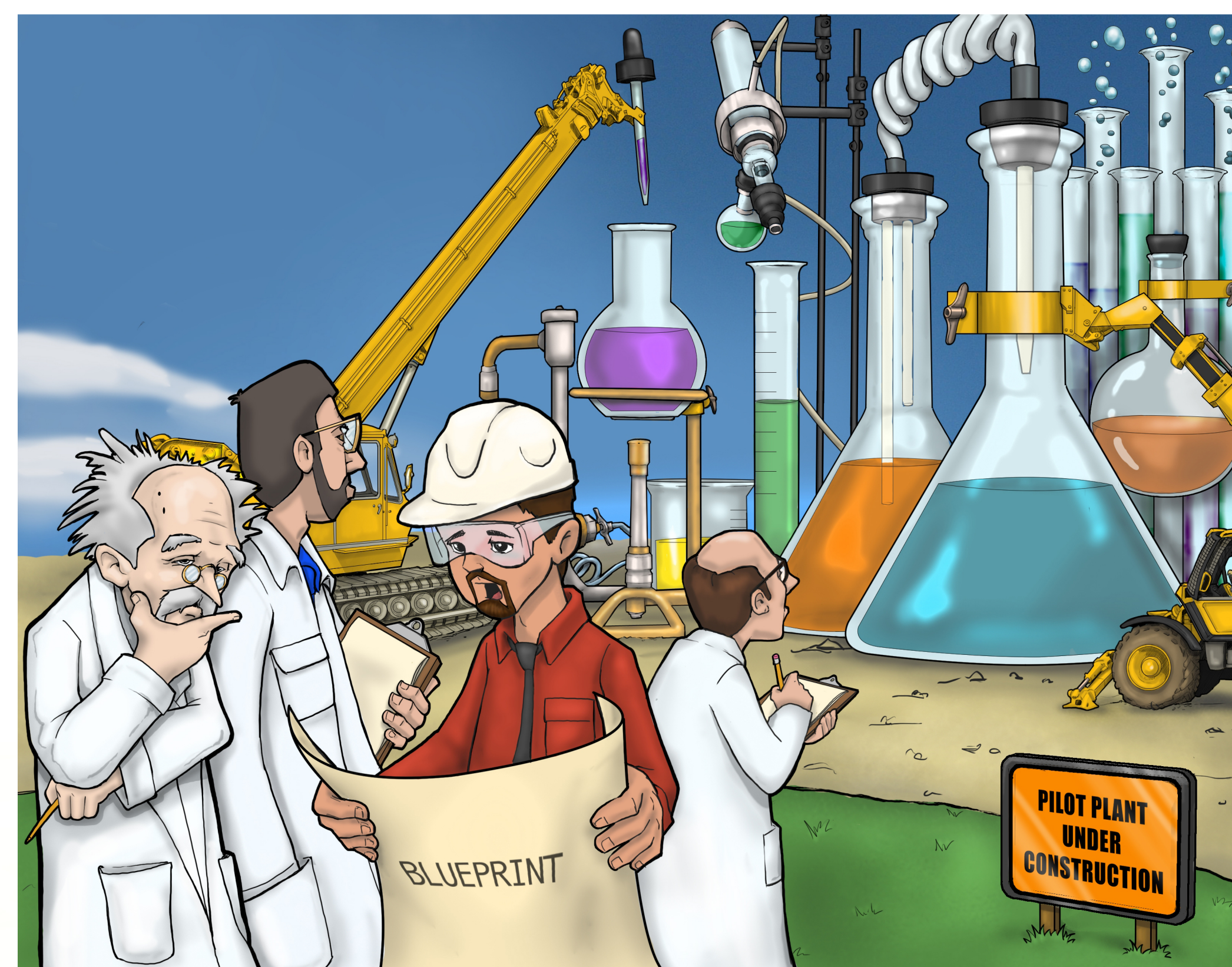
Argonne's Materials Engineering Research Facility (MERF) is developing production-ready processes for the laboratory's most promising new battery electrode and electrolyte materials. The new facility is equipped to run a wide range of chemical processes and allows researchers to conduct 1–10 kg process scale-up work.

BENEFITS

By developing manufacturing processes to produce new battery materials in sufficient quantity for industrial testing, MERF research is helping to speed the validation and ultimate commercialization of advanced battery materials.



Initial synthesized amounts of battery materials are small compared to the kilo-scale amounts needed by industry for the validation of new battery technologies.



"We've got a few problems with the process scale-up."

Scale-up R&D is one of the most significant hurdles in transitioning new battery materials and technologies to the market.



Argonne's Materials Engineering Research Facility.

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