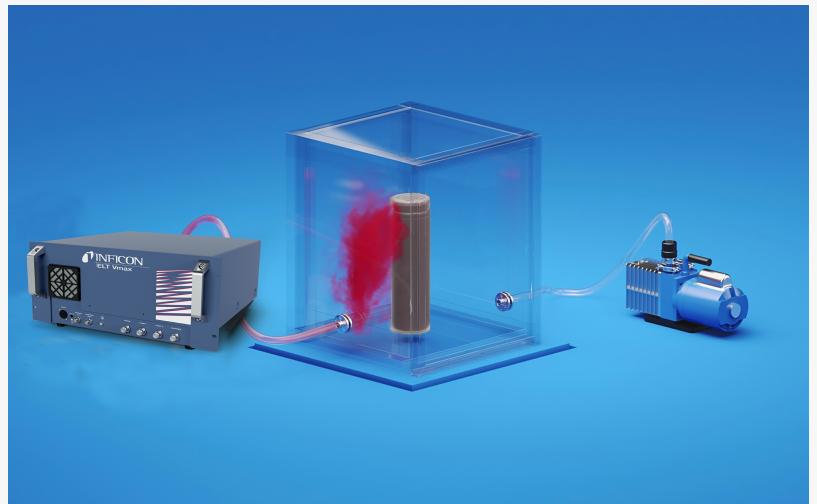


INFICON Stressed Enhanced EV Battery Safety at The Battery Show South and Assembly Show South

INFICON, a leader in leak detection, highlighted the urgent need for comprehensive testing of all EV battery cells, modules and packs at Two Recent Trade Events

SYRACUSE, NY, UNITED STATES, April 18, 2025 /EINPresswire.com/ -- [INFICON](#), a leader in leak detection solutions, highlighted the urgent need for comprehensive testing of all EV battery cells, modules and packs at The Battery Show South in Atlanta and The Assembly Show in Nashville, April 16-17, 2025.



INFICON's ELT Vmax system is specifically designed for industry-scale mass-production environments using automatic leak testing stations.

"Every battery cell, prior to assembly into a module and again after module fabrication, should be leak tested," said Thomas Parker, automotive market sales manager at INFICON. "Cells and modules require testing at multiple stages. Once a battery pack is completed, internal battery cooling circuits also become part of the leakage requirements. Leaking cooling circuits may rapidly degrade battery performance and safety."

Currently, North American EV battery manufacturers do not test 100% of individual cells assembled into battery packs for electrolyte leakage, leading to missed defects and possible battery fires, higher warranty costs, and potential reputational damage.

"There is a critical need for more thorough testing of individual cells before they are assembled into packs," Parker continued. "Each metal-ion cell now preferred for EV propulsion must be leak-free to prevent liquid or atmospheric moisture from causing dangerous degradation over time."

The introduction of SAE testing standard J3277 establishes a method for ensuring battery pack

integrity, including methods for water ingress and coolant ingress testing. These tests typically utilize a test gas as tightness specifications like IP67 (which requires 30 minutes under 1 meter of water) would be unworkable. Testing assembled battery packs involves pressurizing the packs with test gas, followed by robotic inspection with a “sniffer” probe to discover leaks. Internal cooling circuits can be tested using pressure decay methods or test gas.

While this testing ensures that battery packs are leak-free at the time of inspection, it does not guarantee the long-term safety of individual cells or modules within the pack. Advances in technology now make it possible to leak-test individual cells and modules for escaping electrolyte to near-molecular levels in the 10-6 mbar l/s range. This can be performed at full production-line speeds, ensuring both efficiency and safety.



Thomas Parker, Automotive Market Sales Manager, INFICON

SAE is also working on a new standard for cell-level integrity testing, J-3337. This standard will address electrolyte leakage at the cell level for Lithium-ion (Li-Ion) and Sodium-ion (Na-Ion) cells. The standard outlines non-destructive testing methods, typically involving vacuum chambers

and spectrophotometers to detect any volatiles linked to the electrolyte. Using test gases eliminates material concerns, as significant differences in leak rates exist between metals such as aluminum and steel due to their different wetting properties.

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*Thomas Parker, INFICON
Automotive Market Sales
Manager*

“The lifetime of a battery strongly depends on the tightness of the cell housing, because of the harmful effects caused by the interaction between the electrolyte and water vapor,” Parker said. “Rapid detection of leaks in the production of battery cells is absolutely essential to achieving necessary service life and safety requirements.”

INFICON remains committed to advancing EV battery safety and advocating for robust, industry-wide testing standards that will help ensure the integrity and longevity of battery packs, as well as enhance the safety of EVs on the road.

About INFICON:

INFICON is a leading provider of innovative instrumentation, critical sensor technologies, and Smart Manufacturing/Industry 4.0 software solutions that enhance productivity and quality of tools, processes, and complete factories.



INFICON logo

These analysis, measurement and control products are also essential for gas leak detection in air conditioning/refrigeration, and automotive manufacturing. Other users of vacuum-based processes include the life sciences, research, aerospace, packaging, heat treatment, laser cutting and many other industrial processes. We also leverage our expertise in vacuum technology to provide unique, toxic chemical analysis products for emergency response, security, and environmental monitoring.

INFICON is headquartered in Switzerland and has world-class manufacturing facilities in Europe, the United States and China, with subsidiaries on three continents.

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