ThermaGel Innovations Expands Military Collaboration and Launches EmberX Battery Safety Solution

In collaboration with the U.S. Navy Research Lab, our revolutionary materials showcase exceptional fire resistance, thermal regulation, and adaptability.

The EmberX material in its multi size crystal form

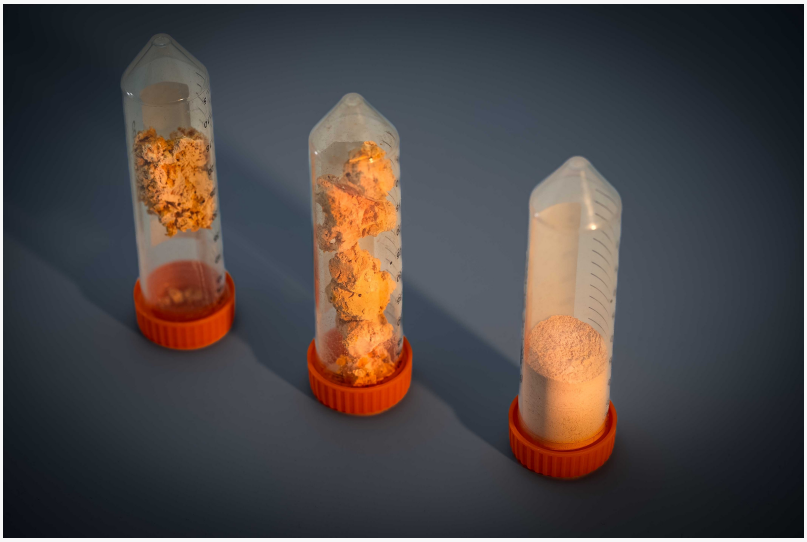
RICHMOND, VA, UNITED STATES, July 1, 2025 /EINPresswire.com/ -- ThermaGel Innovations, a leader in advanced thermal insulation technology, announces a major step forward in its mission to mitigate battery fire risks with the launch of EmberX, its flagship fire-prevention solution for lithium-ion battery systems. This news follows a second order from the U.S. Navy and expanded testing under the Cooperative Research and Development Agreement (CRADA) with NAVSEA (Naval Sea Systems Command), confirming growing interest in ThermaGel's patented technology across mission-critical platforms.

> Through our Joint Development Agreements, we can deliver scalable, science-backed solutions that meet energy transition's most urgent safety and performance challenges."
>
> *Tom Warren CAO of ThermaGel Innovations.*

After successful Phase I & II trials through the Navy Research Lab, materials are now being evaluated in larger systems and broader energy platforms. Meanwhile, the U.S. Army has launched parallel testing of ThermaGel's A-PCM composites for different use cases, highlighting adaptability across the defense landscape.

"Our CRADA with NAVSEA has opened the door to rigorous, real-world testing," said Dr. Everett Carpenter, CEO of ThermaGel Innovations. "We're now moving from lab validation to operational integration, and EmberX is leading that charge—offering scalable, effective protection exactly where it's needed."

EmberX is powered by ThermaGel's proprietary aerogel-phase change material composite, which absorbs and disperses heat to prevent thermal runaway events (TREs)—a major cause of battery fires in energy storage and e-mobility systems. In addition to its granular crystal form, ThermaGel now offers a thin, mechanically robust board format, expanding the product's integration options for modular energy storage systems, battery enclosures, and fire barriers.



EmberX Fireproof Crystals prior to being formed for use in battery systems

EmberX Properties

"EmberX stops heat where it starts," said Dr. Massimo Bertino, CSO and inventor of the material. "It doesn't just resist ignition—it breaks the chain reaction of thermal runaway. It's stable, non-carcinogenic, and unlike anything currently on the market."

The urgency for battery fire mitigation is underscored by the increasing risks in Battery Energy Storage Systems (BESS). Industry studies estimate that BESS-related fires cause over $100 million annually in lost revenue, with each incident resulting in 5,000 to 15,000 man-hours of downtime and extensive remediation costs. [Source: Wood Mackenzie Power & Renewables, 2023; National Fire Protection Association (NFPA)]

"Battery safety is now a front-line issue," said Adam Matalon, CRO at ThermaGel. "With EmberX, we're not just bringing a novel material to market—we're offering a critical layer of defense. The fact that it integrates well and performs reliably makes it a powerful tool in an increasingly vulnerable sector."

ThermaGel owns patented aerogel technology, originally developed at Virginia Commonwealth University (VCU) with funding from the Department of Transportation and Department of Energy. With expanding engagement from U.S. defense labs and increasing interest from commercial energy storage leaders, ThermaGel is positioned for accelerated growth across North America and Europe.

“Our mission is clear,” added Tom Warren, CAO. “Through our Joint Development Agreements, we can deliver scalable, science-backed solutions that meet energy transition’s most urgent safety and performance challenges.”

About ThermaGel Innovations
Founded in 2023, ThermaGel Innovations is a pioneer in advanced insulation technology. Headquartered in Richmond, Virginia, the company focuses on aerogel-based solutions that improve building envelopes, energy efficiency, and fire safety across multiple industries, including data centers, grid-level storage, and BESS systems. From commercial retrofits to protecting the future of the AI economy, ThermaGel’s mission is to deliver sustainable, high-performance materials that address today’s most pressing thermal and fireproofing challenges.

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