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Self-Extinguishing, Toxic Gases Containment Enclosure for Lithium-Ion Batteries

A lightweight, fire-safe “bubble wrap” enclosure captures toxic gases from lithium-ion batteries for safer handling in automotive, aviation, and defense use.

Researchers at Purdue University have developed a new self-extinguishing enclosure for containing toxic gases from the production of lithium ion batteries. Flammable electrolytes form during this process and must be securely isolated for transportation and disposal. There remains an unmet need for a portable, light-weight solution. Purdue researchers meet this challenge with a unique "bubble wrap" that features specialized ventilation and easily fits around a secured box to hold potentially toxic gases. This system helps to avoid fires that can happen on thermal runways of lithium ion batteries as they are comprised of thermocouples. In addition, this process allows batteries to gain higher capacity and energy density. This innovative approach for trapping toxic gases can be easily implemented into the manufacturing process for automotive, aviation, and military and defense applications.

Advantages:

-Secure

-Safe

-Accurate

-Simple

Potential Applications:

-Manufacturing

-Aviation

-Military and Defense

-Automotive

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Category

Aerospace & Defense/Defense Electronics & Surveillance Technologies

Energy & Power Systems/Energy Storage

Chemicals & Advanced Materials/Materials Processing & Manufacturing Technologies

Further information

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View online

Technology Validation:

Testing with US Military

TRL: 2

Intellectual Property:

Provisional-Patent, 2020-06-04, United States

Utility Patent, 2021-06-02, United States

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