Impact of Inert Gases on lithium Metal Battery Fires

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Lithium metal batteries are known to present a safety risk when shipped on aircraft. When lithium batteries undergo a process called thermal runaway, their temperatures climb dangerously high and they emit flammable gasses that can ignite to cause a secondary danger.

Aircraft cargo compartments are equipped with fire mitigation strategies. The class-C compartment utilizes a halon 1301 system to suppress cargo fires and the class-E compartment utilizes decompression.

This series of tests evaluated the effect of two additional mitigation strategies against lithium battery fires. A nitrogen rich environment and an argon rich environment were tested to determine their effect on the propagation and temperature rise during a battery fire event.