Self-Shutdown Li-ion Energy Storage Device for Explosion Prevention

Anti-Explosion Li-ion energy storage technology with build-in revolutionary Self-Shutdown Layer (SSL) design safeguards energy storage device from thermal runaway.

Keywords:
- lithium-ion, energy storage device, fire, explosion, safety, thermal runaway, Self-Shutdown Layer (SSL), overcharging, temperature rise, environmental-friendly, anti-explosion, electrification, vehicle.

Problems addressed

Lithium-Ion based energy storage device presents potential fire hazard and explosion risks caused by overheating. In the worst scenario, such hazards may lead to serious accidents, damage to properties, or even casualties.

The safety enhanced Li-ion energy storage technology with built-in revolutionary self-shutdown design will safeguard the energy storage device from thermal runaway. Thus, greatly mitigates the hazardous risks and yields a more consummate and effective solution to protect environment, properties, and human lives.

Innovations

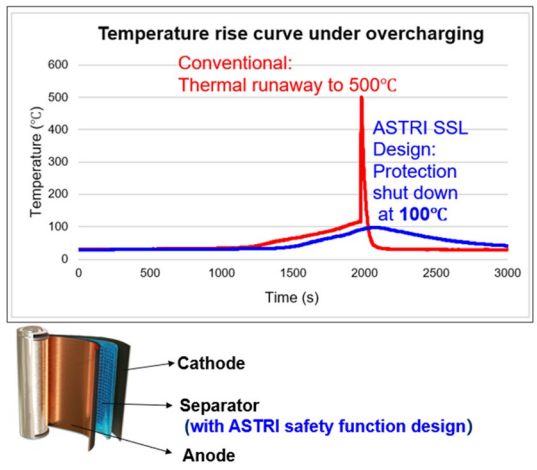
The built-in revolutionary **Self-Shutdown Layer (SSL)** design will trigger the immediate pore closure to block the ion diffusion to cut off the electricity path, thus suppressed overheating and inhibit thermal runaway propagation, under overcharging and/or other abuse conditions.

Key features include:
- **Thermal driven self-shutdown function** to suppress overheating reaction and inhibit thermal runaway
- **High porosity** via the innovative design of shrinkable particles
- **Environmental-friendly** and **low-cost process**

Key impact

- Protect human life and properties with **anti-explosion enhanced safety**
- Promote **electrification** for carbon neutrality
- Boost **industry 4.0**

Innovation snapshot



Project completed

- March 2019

Applications

- 3C
- Robotics, Drone
- Light electric-drive vehicle

Patent(s)

- US Patent No. 10,109,843
- US Patent No. 10,608,226

ASTRI Patent Search

Commercialisation opportunities

- IP licensing
- Technology co-development

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