

# Effect of an integrated Separator/Li-metal Assembly on Enhanced Electrochemical Performance of Lithium-Ion Batteries

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Currently, the lithium secondary battery market is expanding from small appliances to electric vehicles and energy storage systems, and research on battery materials that can improve energy density is actively under way.

Lithium metal, one of cathode materials, has the advantage of having a higher theoretical capacity than conventional commercial graphite

However, lithium metal has a problem in that dendrite and dead lithium are generated in repeated charging and discharging processes, resulting in deterioration of lifetime characteristics, and explosion and ignition may occur due to an internal short circuit when exposed to a harsh environment.

As a representative method for solving the above problem, there has been reported a research to suppress the lithium dendrite by coating a protective layer on the surface of the lithium metal. However, the energy density per volume of the battery is lowered due to the thick protective layer.

Therefore, in this study, we tried to fabricate a cell in which a separator / lithium metal is integrated by polymer layer coating at a thin film level using an electrochemically stable polymer adhesive.

## References:

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