

What if an EV could go 1,000 miles on a single charge?

24M® can put that car on the road. 24M's proprietary, liquid electrolyte formula of Eternalyte™ enables significant improvements in cycle life and rate capability of lithium-metal batteries. Together with 24M's full technology set, Eternalyte can deliver a cost-effective and safe 1,000-mile-per-charge battery pack.

The 24M suite of battery technologies fully addresses current lithium-metal challenges. Together, 24M ETOP™, Impervio™ and Eternalyte boost safety, cycle life and energy density to bring the 1,000-mile battery pack to life.

Lithium-metal batteries are key to groundbreaking energy density. Yet reliance on solid-state technologies to commercialize next-gen energy storage has slowed industry progress. Eternalyte, developed specifically for lithium-metal, eliminates the obstacles of using liquid electrolytes with lithium-metal anodes. Delivering enhanced cycle life and stability, even under rapid charging, Eternalyte brings the promise of lithium-metal to the market today.

Benefits

Substantial Cycle Life

Early test results show that Eternalyte enables substantial improvements in cycle life and rate capability for lithium-metal batteries.

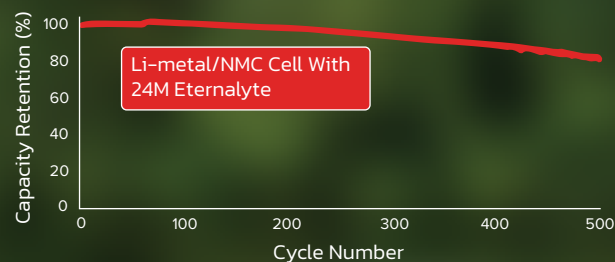
Unmatched cycle stability

For a lithium-metal cell cycling at 1C discharge/1C charge, Eternalyte™ allows the cell to retain 83% capacity over 500+ cycles, approximately 500,000+ miles of total range and 1,000 miles per charge.

Significant rate improvements

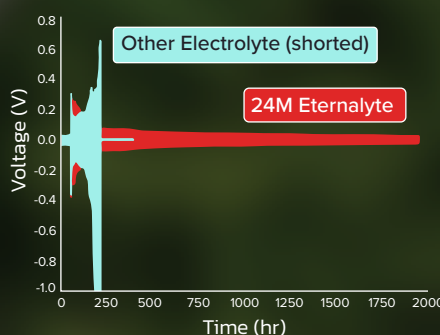
Test results for lithium-lithium base cells suggested an equivalent of 3,000+ cycles with 4C continuous cycling without shorting or increasing resistance.

Unmatched Cycle Stability



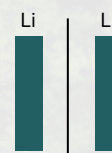
Cycle Rate	1C Dischg. / 1C Chg.
Cathode	NMC 3mAh/cm ²
Anode	50um Li metal
Unit Cell Energy Density	391 Wh/kg, 887 Wh/l
24M ETOP™ Pack Energy Density	350 Wh/kg, 665Wh/L

Significant Rate Improvements



Rate	20mA/cm ²
Temperature	25°C
Areal Capacity	5 mAh/cm ²
Electrode	50 um Li

Li-Li Base Cell



Until now, solid-state electrolyte (SSE) technology has been the preferred choice for companies trying to commercialize lithium-metal batteries, which have long offered the promise of dramatically higher energy densities. However, safety concerns and short and inconsistent cycle life, caused by lithium or other metal dendrites, limit the commercial viability of lithium-metal cells.

Challenges with SSE's scalability, cost, fragility, and changes in electrical resistance with cycling are additional issues that need to be solved. 24M's unique liquid electrolyte, Eternalyte, combined with Impervio solves these challenges. The combination is a low-cost way to prevent all metal dendrites and achieve excellent cycle life with consistent and low electrical resistance to cathode active materials.

For purchase or licensing information, please contact sales@24-m.com.

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