BroadBit Batteries Oy Announces ProLion 3M: Next-Generation Electrolyte for High-Power, Low-Temperature LMFP Cells

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BroadBit Batteries Oy, a pioneer in advanced Sodium-Salt and Lithium-Ion cell chemistry, proudly introduces ProLion 3M, a breakthrough electrolyte formulation specifically engineered for Lithium Manganese Iron Phosphate (LMFP) cells. Designed to deliver superior cycle life, rate power capability and low-temperature performance, ProLion 3M builds on the proven safety and cycle life foundation of its predecessor, ProLion 3, and positions LMFP technology as a leading choice for next-generation electric vehicles (EVs), renewable energy storage, and high-drain applications.

A Legacy of Innovation in LMFP Technology

BroadBit has been at the forefront of LMFP development since 2018, well before the material gained mainstream attention. While the industry focused on LFP and NMC chemistries, BroadBit recognized LMFP's potential to combine high energy density (up to 240 Wh/kg), inherent safety, and cost-effectiveness. The company's early investment in tailored electrolytes has now culminated in ProLion 3M, a formulation that addresses three critical limitations of LMFP cells: cycle life, power delivery and cold-weather operation.

"*LMFP is the future of sustainable, high-performance batteries*," said Dr. David Brown, CEO at BroadBit Batteries Oy. "*With ProLion 3M, we're not just improving performance, we're enabling LMFP to outperform conventional electrolytes in real-world conditions, from Arctic winters to high-performance EVs.*"

ProLion 3M: Engineered for Power and Resilience

ProLion 3M has been rigorously tested in cylindrical cells featuring:

- Cathode: LMFP (18650 LMFP-Gr, projected capacity 1100 mAh)
- Anode: Artificial graphite
- Electrode design: 1-tab construction, 55–60 cm length
- Testing protocol: Charge (CCCVM, 0.5C, 4.25V, 0.05C cutoff), Discharge (CC, 2.5V)

Key Performance Advantages:

1. Superior Rate Capability

ProLion 3M delivers higher discharge power than ProLion 3, which already outperformed conventional carbonate-based electrolytes. Figure 1 shows:

- ProLion 3M: Sustains ~95% normalized capacity at 5C, dropping to only ~88% at 8C.
- ProLion 3: Retains ~80% at 5C.

Figure 1 highlights ProLin 3M's edge across 120 cycles, with stable performance at high C-rates.

2. Enhanced Low-Temperature Performance

Optimized ionic conductivity and reduced interfacial resistance enable reliable operation down to -30°C, critical for EVs in cold climates and grid storage in extreme environments.

3. Extended Cycle Life

Cycle life was tested in 2032 format full coin cell construction at elevated temperature (40°C) and it was observed that ProLion 3M maintains even better initial discharged capacity and capacity retention than ProLion 3, which already delivered three times the cycle life of traditional electrolyte formulations.

4. Inherent Safety

Like ProLion 3, the 3M formulation minimizes HF formation, suppresses thermal runaway (stable up to 250°C), and enhances electrode stability, making it ideal for high-safety applications.

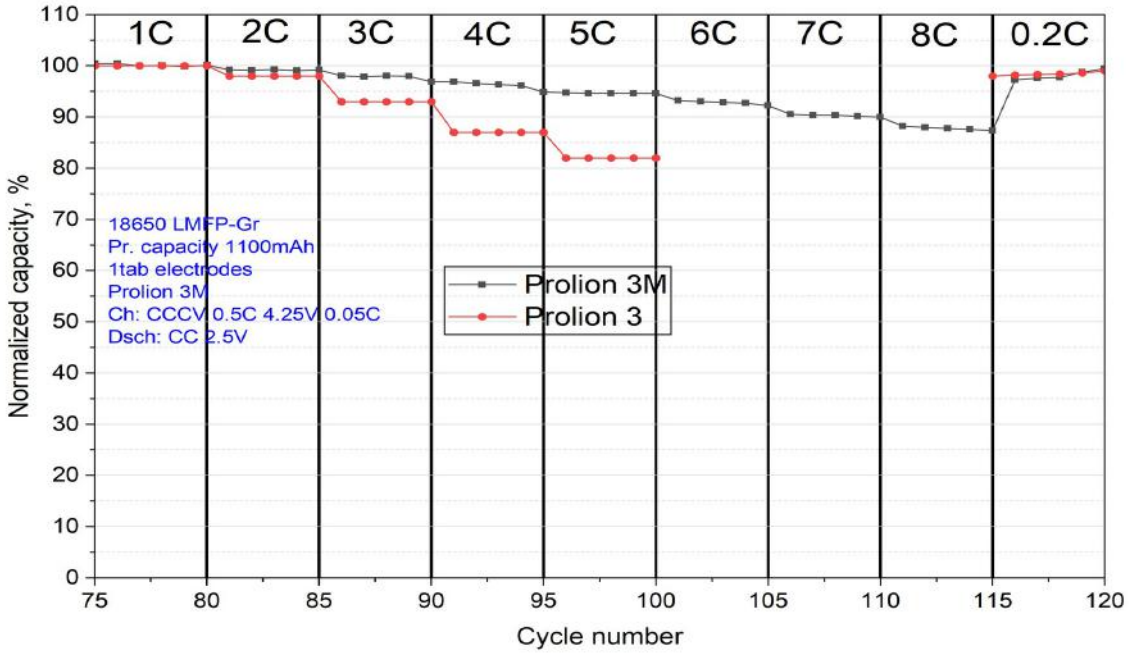

Figure 1: C-Rate Discharge Performance: ProLion 3M vs. ProLion 3.

Exceptional High Capacity Retention

Accelerated degradation tests at elevated temperature (40°C) have already demonstrated that Prolion 3 outperformed standard electrolyte formulation in terms of discharge capacity and capacity retention, delivering four times the cycle life compared to standard electrolyte. ProLion 3M has even higher initial discharged capacity and even better cycle life and capacity retention.

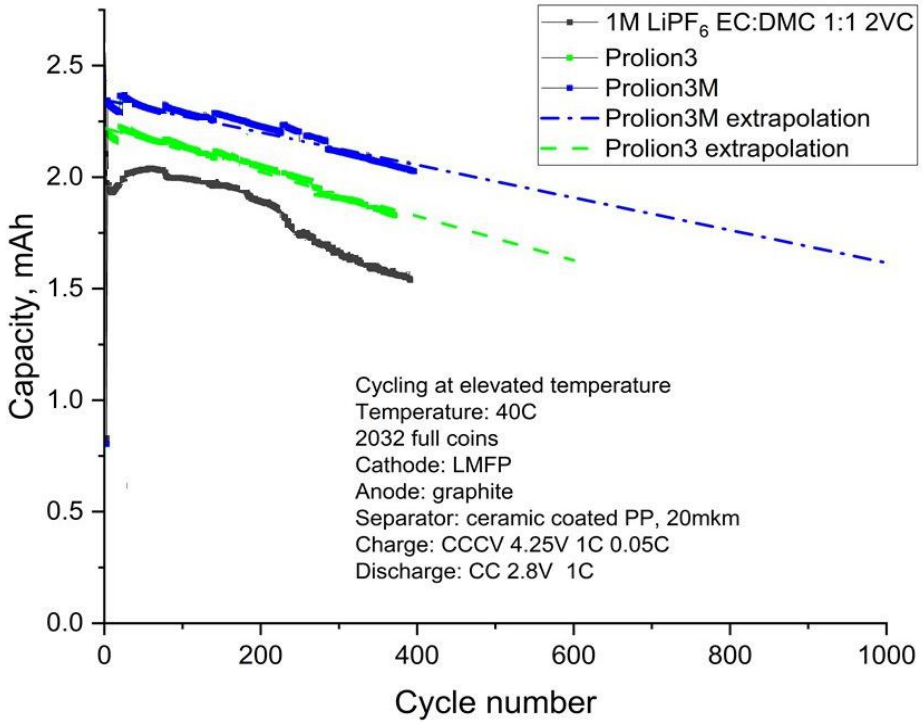

Figure 2: Initial discharge capacity, capacity retention and cycle-life at elevated tempature (40°C): ProLion 3M vs. ProLion 3 and Standard formulation

ProLion 3M consistently outperforms ProLion 3, which already outperformes standard Li-ion electrolytes, especially at 5C and 8C rates, with recovery to ~100% at 0.2C.

A Technology Needed for Large Scale Adoption

ProLion 3M is a Must-Have for LMFP Cell Manufacturers as global players like CATL, Gotion, and BYD scale LMFP production for 2026–2030 EV platforms, the need for high-performance electrolytes has never been greater.

ProLion 3M is a drop-in, production-ready solution that unlocks:

- Faster charging for Evs
- Reliable power in cold climates
- Extended range without compromising safety

broadbit Batteries

ProLion™ Lithium Ion Electrolytes

Join the LMFP Revolution

BroadBit invites LMFP cell manufacturers, OEMs, and R&D teams to explore ProLion 3M through:

- Electrolyte supply (lab-scale to pilot volumes)
- Third party dry cell filling (for lab and field trials)
- Consulting services in:
  - R&D and formulation optimization
  - Electrode design and coating
  - Cell piloting and process engineering
  - Scale-up and quality control

"*ProLion 3M isn't just an electrolyte, it's a market enabler*" added Dr. David Brown. "*We're ready to partner with forward-thinking companies to bring safer, longer lasting, and more powerful LMFP batteries to new markets that were unavailable before due to life-time and performance limitations.*"

About BroadBit Batteries Oy: Founded in 2015, BroadBit Batteries Oy is a Finnish deep-tech company specializing in next-generation battery materials and electrolytes. With over 70 granted patents and a track record of pioneering sodium- and lithium-based innovations, BroadBit is committed to sustainable, high-performance energy storage solutions.

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