

Lithium Rich Manganese Based Cathode Material For High Energy Density Lithium Ion Battery Research And Manufacturing

Item Number: CL15



Introduction

High capacity lithium rich manganese based cathode material delivers over 250 mAh per g with superior thermal stability lower raw material costs and exceptional energy density for next generation lithium ion battery pouch cells and coin cells.

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Application	Description	Key Benefit
Electric Vehicle (EV) Traction Batteries	High-energy cell prototyping for automotive battery packs requiring extended driving ranges and high thermal runaway thresholds.	Substantially reduces pack weight and raw material costs while maintaining superior structural and thermal safety at high cell voltages.
Heavy-Duty Cordless Power Tools	High-drain cylindrical and prismatic cell development demanding robust dynamic power delivery and thermal resilience.	Sustains reliable high-rate discharge kinetics (up to 3C) without localized overheating or structural lattice collapse.
Pouch and Coin Cell Electrochemical R&D	Academic and industrial research benchmarking solid-solution phase transitions, anionic redox reactions, and novel high-voltage electrolytes.	Delivers consistent, highly reproducible electrochemical data across standard 2032/2016 coin cells and multi-layer pilot pouch cells.
Grid-Scale Stationary Energy Storage (ESS)	Low-cost, long-duration energy storage modules designed for containerized solar/wind integration and commercial peak shaving.	Lowers cathode cost per kilowatt-hour by substituting expensive cobalt with abundant manganese in high-cycle-life formulations.
Consumer Electronics and Tablets	Ultra-thin pouch cell applications for laptops, tablets, and smart devices requiring maximized volumetric energy within constrained dimensions.	Achieves high active material tap density (2.00 g/cm ³) and superior specific capacity to maximize single-charge device runtime.
Smart Toys and Robotic Devices	Compact energy storage solutions for automated guided vehicles, drones, and consumer robotics operating across wide temperature spectra.	Provides an economical, highly stable power foundation with low internal self-discharge and durable cycle performance.

Specification Parameter	Value / Characteristic
Product Identifier	CL15
Material Classification	Lithium-Rich Manganese-Based Solid-Solution Cathode Powder
Available Packaging Units	20 g / 100 g / 500 g / 1000 g sealed bottles/foil packs
Particle Size Distribution D10	4.90 μm
Particle Size Distribution D50	9.40 μm
Particle Size Distribution D90	16.8 μm
Specific Surface Area (BET)	0.70 m ² /g
Tap Density	2.00 g/cm ³
Nominal Specific Capacity	200 mAh/g (at 3.0 V – 4.6 V, 0.1C, 25°C)
Extended Voltage Capacity Window	≥ 250 mAh/g (at 2.0 V – 4.8 V)

Specification Parameter	Value / Characteristic
Standard Voltage Window	3.0 V to 4.6 V
Extended Testing Voltage Window	2.0 V to 4.8 V
Coin Cell Testing Conditions	25°C, 0.1C rate, 3.0 V to 4.6 V cut-off
Material pH Value	10.86
Moisture Content (H ₂ O)	~ 0.0335%
Iron (Fe) Impurity Level	~ 0.0032%
Copper (Cu) Impurity Level	~ 0.0000% (Not Detectable)
Magnesium (Mg) Content	~ 0.0129%
Gallium (Ga) Content	~ 0.0099%
Rate Capability Test Protocol	Charge: 25°C, CC at 0.5C to 4.8 V, CV until current < 0.02C; Discharge: CC at 0.1C / 0.2C / 0.5C / 1C / 2C / 3C down to 3.0 V
Cycle Life Test Protocol	Charge: 25°C, CC at 0.5C to 4.8 V, CV until current < 0.02C; Discharge: CC at 1C down to 3.0 V