

Nmc Lithium Ion Secondary Battery Cathode Material Ncm622 Powder

Item Number: CL03



Introduction

High performance NCM622 NMC lithium ion secondary battery cathode material powder engineered for EV power cells and energy storage systems delivering superior 187 mAh per g initial capacity excellent rate capability high compaction density and exceptional thermal cycle stability

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Application	Description	Key Benefit
Electric Vehicle Traction Packs	Cathode active material for high-capacity cylindrical, prismatic, and pouch cells in EV/HEV drivetrains.	Balances high specific energy output with robust thermal safety and extended cycle life under dynamic loads.
Stationary Grid Energy Storage	Large-format lithium-ion battery modules for renewable energy buffering and frequency regulation.	Delivers reliable multi-year calendar life and stable charge acceptance across fluctuating temperature regimes.
Power Tools & High-Drain Devices	Rapid-discharge cell architectures requiring sustained power delivery at high C-rates.	Low internal impedance supports high power density and minimal voltage drop during pulse discharge.
Consumer Electronics	Thin-profile pouch cells for laptops, drones, smart appliances, and portable communication gear.	High volumetric energy density enables slim form-factor battery integration without sacrificing operating runtime.
Advanced Battery R&D	Standardized baseline cathode material for solid-state electrolytes, functional coatings, and novel binder research.	Highly consistent baseline electrochemistry ensures reproducible experimental data across multi-batch academic trials.

Classification	Parameter / Test Item	Standard Specification	Typical Reference Value	Test Method / Conditions
Product Identification	Item Number	CL03	CL03	Factory Designation
	Chemical Formula	LiNi0.6Co0.2Mn0.2O2	LiNi0.6Co0.2Mn0.2O2	Stoichiometric Composition
	Material Type	Lithium Nickel Cobalt Manganese Oxide	Power-Type NCM622	Industry Category
	Compliance Standard	YS/T 798-2012	Compliant	Chinese Industry Standard
	Appearance	Gray-black powder, no agglomerates	Gray-black powder	Visual Inspection
Physical Properties	Packaging Unit	500 g / bag	500 g / bag	Moisture-Proof Vacuum Sealed
	Particle Size D50 (μm)	4.0 ± 1.0	4.0	Laser Particle Size Analyzer
	Specific Surface Area (BET) (m²/g)	0.5 ± 0.2	0.5	Nitrogen Adsorption (BET)
	Tap Density (TD) (g/cm³)	1.8 ± 0.2	1.8	Tap Density Volumeter
	pH Value	≤ 11.5	11.0	Aqueous Solution pH Meter
Chemical Composition	Residual LiOH (wt%)	≤ 0.20	0.10	Chemical Titration
	Residual Li2CO3 (wt%)	≤ 0.20	0.09	Chemical Titration
	Lithium (Li) Content (%)	7.0 – 8.0	7.4	Inductively Coupled Plasma (ICP)
	Transition Metals (Ni+Co+Mn) (%)	57.0 – 62.0	58.6	Inductively Coupled Plasma (ICP)

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	Calcium (Ca) Impurity (%)	≤ 0.0200	0.0016	ICP-OES Analysis
	Copper (Cu) Impurity (%)	≤ 0.0050	0.0001	ICP-OES Analysis
	Iron (Fe) Impurity (%)	≤ 0.0100	0.0021	ICP-OES Analysis
	Sodium (Na) Impurity (%)	≤ 0.0300	0.0152	ICP-OES Analysis
Electrochemical Metrics	First Discharge Capacity (mAh/g)	≥ 180.0	187.0	Half-Cell vs. Li, 0.1C (2.75V-4.3V)
	First Cycle Efficiency (%)	≥ 87.0	88.0	Half-Cell vs. Li, 0.1C (2.75V-4.3V)
	0.5C Coin Cell Capacity (mAh/g)	≥ 165.0	166.2	Half-Cell vs. Li, 0.5C (2.75V-4.3V)
	1.0C Coin Cell Capacity (mAh/g)	≥ 160.0	162.3	Half-Cell vs. Li, 1.0C (2.75V-4.3V)
	0.5C Coin Cell First Efficiency (%)	≥ 83.0	85.7	Half-Cell vs. Li, 0.5C (2.75V-4.3V)
	Full-Cell Design Capacity (mAh/g)	163.0 (Target)	163.0	vs. Graphite Anode, 0.5C (3.0V-4.2V)
Processing & Storage	Pre-Mixing Baking Condition	120°C for 6 hours	Recommended	Convection Vacuum Oven
	Recommended Compaction Density	3.20 – 3.40 g/cm ³	3.30 g/cm ³	Precision Calendering Roll
	Sealed Storage Conditions	Temp: 20 ± 10°C, RH ≤ 50%	Sealed Original Pack	Shelf Life: 1 Year
	Unsealed Storage Conditions	Relative Humidity ≤ 30% RH	Rapid Consumption	Inert Glovebox / Dry Room