

Carbon Coated And Uncoated Lto Lithium Titanate Powder

Li₄Ti₅O₁₂ Litio Battery Anode Material

Item Number: CL22



Introduction

High purity carbon coated and uncoated LTO lithium titanate powder Li₄Ti₅O₁₂ LiTiO anode material delivers exceptional thermal safety ultra long cycle life and high rate capability for advanced energy storage systems electric vehicles specialty power supplies and hybrid supercapacitors.

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Application	Description	Key Benefit
Grid Energy Storage Systems (BESS)	Stationary frequency regulation, renewable peak shaving, and high-throughput microgrid storage infrastructure.	Delivers extraordinary calendar and cycle life with minimal capacity degradation, lowering long-term levelized cost of storage (LCOS).
Heavy-Duty Electric Vehicles & Transit	Rapid-charging electric buses, commercial delivery fleets, mining haulers, and railway auxiliary traction power.	Enables extreme 10C-20C fast-charging protocols without thermal runaway risk or lithium dendrite-induced short circuits.
Hybrid Supercapacitors & Pulse Power	Asymmetric high-rate energy storage devices bridging the gap between conventional batteries and electric double-layer capacitors.	Provides rapid pulse power delivery, instant regenerative braking absorption, and high volumetric energy storage.
Cold-Climate & Extreme Temperature Systems	Sub-zero military power packs, aerospace auxiliary power, and polar environmental monitoring equipment.	Maintains robust lithium-ion diffusion kinetics at low temperatures where conventional graphite anodes suffer severe plating and capacity drop.
Industrial AGVs & Material Handling	Continuous 24/7 automated guided vehicles, robotic warehouse fleets, and heavy automated forklifts.	Supports opportunity fast-charging in minutes rather than hours, maximizing fleet uptime and operational productivity.
Uninterruptible Power Supplies (UPS)	Mission-critical datacenter backup power, telecommunication base stations, and hospital emergency infrastructure.	Delivers instantaneous high-power discharge capability with maintenance-free, long-duration operational reliability.
Solid-State & Advanced Battery Research	Academic and industrial cell research exploring all-solid-state electrolytes, hybrid ceramic separators, and high-voltage cathode pairings.	Offers a stable, zero-strain baseline anode with well-characterized bonding mechanics and electrochemical kinetics.

Parameter	Unit	CL22-W (Uncoated)	CL22-B (Carbon-Coated)	Inspection Equipment / Method
Product Identifier	—	CL22-W	CL22-B	Factory Designation
Visual Appearance	—	Pure White Powder	Grey-Black Powder	Visual Inspection
Core Chemistry	—	Li ₄ Ti ₅ O ₁₂ (Spinel LTO)	C-Li ₄ Ti ₅ O ₁₂ Composite	Chemical Analysis
Purity	%	≥ 99.0	≥ 99.0	Chemical Assay / ICP-OES
Carbon Content	%	0	3.0 – 5.0	High-Frequency Combustion Analyzer
Particle Size D10	µm	0.2 – 0.6	0.2 – 0.6	Malvern Mastersizer 2000
Particle Size D50	µm	0.7 – 1.5	0.8 – 1.6	Malvern Mastersizer 2000
Particle Size D90	µm	≤ 10.0	≤ 10.0	Malvern Mastersizer 2000
Tap Density	g/cm ³	≥ 0.9	≥ 1.0	Quantachrome Autotap DAT-3
BET Specific Surface Area	m ² /g	≤ 16.0	≤ 6.0	Quantachrome NOVA 1000e

Parameter	Unit	CL22-W (Uncoated)	CL22-B (Carbon-Coated)	Inspection Equipment / Method
First Discharge Capacity (0.1C)	mAh/g	≥ 150.0	≥ 150.0	Half Cell (vs. Li/Li+, 1.0-2.5 V)
First Cycle Coulombic Efficiency	%	≥ 93.0	≥ 92.0	Half Cell Evaluation
Foreign Matter Screening	—	Pass (No residues)	Pass (No residues)	200-Mesh Standard Sieve Sampling
Primary Application Target	—	High Purity / Ceramic Electrolyte Compatibility	High-Rate Cycling / Power Systems	Application Specific