

Carbon Coated Silicon Anode Material Silicon Carbon Composite Powder For Lithium Ion Batteries

Item Number: CL20



Introduction

High performance carbon coated silicon anode material engineered for next generation lithium ion battery development delivering exceptional discharge capacity low surface area optimized tap density superior initial coulombic efficiency and reliable cycle life stability across demanding electrochemical testing protocols.

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Application	Description	Key Benefit
High-Energy Cylindrical & Prismatic EV Cells	Blended with synthetic graphite (5 wt% to 20 wt%) in commercial-scale automotive pouch, 21700, and 4680 cylindrical cell designs.	Significantly boosts volumetric and gravimetric energy density while maintaining acceptable swelling limits and cycle life.
Consumer Electronics & Drones	Used in ultra-slim pouch cells for mobile devices, wearable technology, power tools, and unmanned aerial vehicles requiring maximum runtime per charge.	Provides high gravimetric capacity to maximize single-discharge operational duration within constrained physical dimensions.
Solid-State & Hybrid Battery Research	Employed as an active anode material in sulfide- and oxide-based solid-state battery investigations and hybrid solid-liquid configurations.	Forms stable interfacial contact with solid electrolytes and reduces void formation during cyclic volumetric shifts.
Electrochemical Kinetic Studies	Serves as a reference silicon-carbon composite in academic and corporate R&D laboratories analyzing SEI formation dynamics, binder interactions, and electrolyte additives.	High batch-to-batch purity and consistent morphological parameters deliver reproducible, publication-grade analytical data.
Electrode Processing Optimization	Utilized in pilot-line calendaring and slurry rheology studies evaluating hot rolling, automatic pressing, and dynamic mechanical stability under high areal loadings.	Low specific surface area and uniform particle size ensure consistent coating rheology and predictable compaction behavior.

Specification Parameter	CL20-S400-A	CL20-S420-A	CL20-S450-A	CL20-S500-A
Discharge Capacity (mAh/g)	≥ 400	≥ 420	≥ 450	≥ 500
Initial Coulombic Efficiency (ICE, %)	91.0 ± 1.0	90.5 ± 1.0	88.5 ± 1.0	87.0 ± 1.0
Particle Size D10 (µm)	8.0 ± 2.0	7.5 ± 2.0	7.0 ± 2.0	6.5 ± 2.0
Particle Size D50 (µm)	16.5 ± 2.0	16.0 ± 2.0	15.0 ± 2.0	15.0 ± 2.0
Particle Size D90 (µm)	30.0 ± 3.0	30.0 ± 3.0	28.0 ± 3.0	28.0 ± 3.0
BET Specific Surface Area (m²/g)	< 2.0	< 2.0	< 2.0	< 2.0
Tap Density (g/cm³)	0.95 ± 1.0	0.95 ± 1.0	0.90 ± 1.0	0.90 ± 1.0
Pellet / Compacted Density (g/cm³)	> 1.20	> 1.20	> 1.20	> 1.20
Standard Packaging	500 g / bag (vacuum sealed)	500 g / bag (vacuum sealed)	500 g / bag (vacuum sealed)	500 g / bag (vacuum sealed)