

Silicon Carbon Anode Electrolyte High Performance Formulation For Lithium Ion Battery Research And Manufacturing

Item Number: FZ01



Introduction

High performance silicon carbon anode electrolyte engineered for next generation lithium battery development delivering ultra low moisture minimal free acidity superior ionic conductivity robust solid electrolyte interphase formation exceptional capacity retention and extended cycle life in research and industrial prototyping.

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Application	Description	Key Benefit
Silicon-Dominant Anode Cell Fabrication	Formulation and electrolyte filling for pouch and cylindrical cells containing high-percentage silicon-carbon composite anodes.	Suppresses active material pulverization and maintains continuous electrical contact through stable passivation.
High-Energy-Density Pouch Cell Prototyping	Deployment in pilot-scale automated cell assembly lines targeting gravimetric energy densities above 300 Wh/kg.	Minimizes gas generation during initial formation cycles while providing fast wetting of dense electrode stacks.
Fast-Charging Lithium-Ion Battery Development	Research and validation of rapid-charging protocols for high-rate consumer electronics and electric vehicle cell chemistry.	High ionic conductivity (up to 11.12 mS/cm) reduces internal cell impedance and prevents lithium plating under fast C-rates.
Academic & Industrial Materials Benchmarking	Baseline electrolyte medium for evaluating novel silicon active materials, binders, and conductive carbon networks in half-cell coin configurations.	Consistent baseline purity eliminates chemical anomalies, ensuring fully reproducible academic and R&D testing data.
Wide-Temperature Battery Systems Testing	Evaluation of silicon-carbon anode behavior across thermal stress profiles and dynamic operating environments.	Stable solvent coordination prevents early precipitation, preserving ion mobility across fluctuating thermal cycles.
Advanced Cathode-Anode Matching Studies	Electrolyte medium utilized when pairing silicon-carbon anodes with high-nickel NCM, NCA, or lithium iron phosphate cathodes.	Broad electrochemical stability window prevents parasitic electrolyte oxidation at high cathode cut-off voltages.

Specification Parameter	Standard Requirement	FZ01-Si01 Test Result	FZ01-Si05 Test Result	Unit	Evaluation Status
Product Item Number	FZ01	FZ01-Si01	FZ01-Si05	--	Verified
Physical Appearance	Clear and Transparent	Clear and Transparent	Clear and Transparent	--	Pass (OK)
Moisture Content (H ₂ O)	≤ 20	12	9	ppm	Pass (OK)
Free Acid (as HF)	≤ 50	23	17	ppm	Pass (OK)
Color Scale (Hazen)	≤ 50	15	10	Hazen	Pass (OK)
Density (at 25°C)	Specified Range	1.213	1.232	g/cm ³	Pass (OK)
Ionic Conductivity (at 25°C)	Specified Range	8.12	11.12	mS/cm	Pass (OK)