

Silicon Carbon Anode Electrolyte For Advanced High Energy Density Lithium Ion Battery Development

Item Number: FZ49



Introduction

High purity silicon carbon anode electrolyte engineered for advanced lithium ion battery systems, offering ultra low moisture below 20 ppm, minimal free acid, superior ionic conductivity up to 11.12 mS/cm, and robust SEI film formation for maximum cell cycle stability.

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Application	Description	Key Benefit
Silicon-Graphite Pouch Cell Prototyping	Liquid electrolyte injection for multilayer high-capacity pouch cells utilizing high-silicon blended negative electrodes.	Suppresses cell swelling and gassing during formation and long-term cycling.
High-Energy Cylindrical Cell Manufacturing	Filling of 21700 and 4680 cylindrical cell architectures engineered for elevated volumetric energy density in mobility platforms.	Ensures complete, rapid electrode wetting and sustained capacity retention under dynamic load cycles.
SiOx Anode Fast-Charging Development	Formulation testing for silicon suboxide anode systems targeted at ultra-fast charging (3C to 6C) protocols.	Minimizes interfacial impedance growth and prevents lithium plating during high-current charging regimes.
Solid-State and Hybrid Cell Interfacial Conditioning	Catholyte and interfacial wet-in agent for semi-solid and hybrid solid-state battery configurations requiring liquid-phase ionic bridges.	Facilitates seamless charge transfer across solid-solid phase boundaries and composite interfaces.
Electrochemical Impedance Spectroscopy (EIS) Baseline Testing	High-precision fundamental research on anode SEI resistance, charge transfer kinetics, and degradation mechanisms.	Delivers ultra-pure baseline repeatability with negligible batch-to-batch chemical variance.
Aerospace & Drone Power Source Fabrication	High-drain, lightweight lithium-ion cell production where maximum gravimetric energy density is mission-critical.	Maximizes initial Coulombic efficiency (ICE) and preserves high discharge voltage plateaus.

Parameter	Standard Specification	FZ49-Si01	FZ49-Si05	Unit	Assessment
Appearance	Clear and transparent liquid	Clear and transparent	Clear and transparent	--	Qualified
Moisture Content (\$H_2O\$)	\$\le 20\$	12	9	ppm	Qualified
Free Acid Content (as HF)	\$\le 50\$	23	17	ppm	Qualified
Color / Chroma	\$\le 50\$	15	10	Hazen	Qualified
Density (25°C)	Report Value	1.213	1.232	\$\text{g/cm}^3\$	Qualified
Electrical Conductivity (25°C)	Report Value	8.12	11.12	mS/cm	Qualified
Sealing & Atmosphere	Inert Argon Hermetic Seal	Dry Argon Protected	Dry Argon Protected	--	Qualified