


SUPERIOR  GRAPHITE
INNOVATING SINCE 1917

Formula ™
Li-Ion Batteries





FormulaBT™: Superior Performance Graphite/Carbon for Energy Applications

Graphite/Carbon Anode Materials Used in Rechargeable Li-ion Batteries.

FormulaBT™ (Battery Technology) are carbon and graphitic powders, developed and manufactured by Superior Graphite, primarily for use in the energy conversion marketplace. Combined with a variety of milling and surface treatment techniques and processes, **FormulaBT™** provides the market with superior performance and high purity products.

FormulaBT™ Advantages:

High Reversible Capacity - Close to the theoretical capacity of 372 mAh/g to meet energy requirements for high-energy Li-ion battery applications, e.g. electric vehicles, e-bikes, etc.

Low Irreversible Loss - Irreversible capacity as low as 5% to maximize the efficiency (determined in Hoshen half cells)

Long Cycle Life - A selective permeable surface layer prevents electrolytes from intercalating into the graphite and avoids the decomposition of the graphite

Excellent High-Rate Capacity - Functional additives in the surface layer lead to higher electrical conductivity, and better high-rate capacity

High Adhesion - Excellent adhesion to the substrate to improve battery manufacturing processability

FormulaBT™ Characteristics:

High Purity - High consistent carbon content (>99.9%) with low moisture content, and extremely low impurities

High Crystallinity - Near 100% crystallinity leads to high reversible capacity by inserting one lithium ion for every six carbons to form the intercalation compound LiC_6

High Packing Density - Maximizing the Li-ion cell capacity at the limited volume

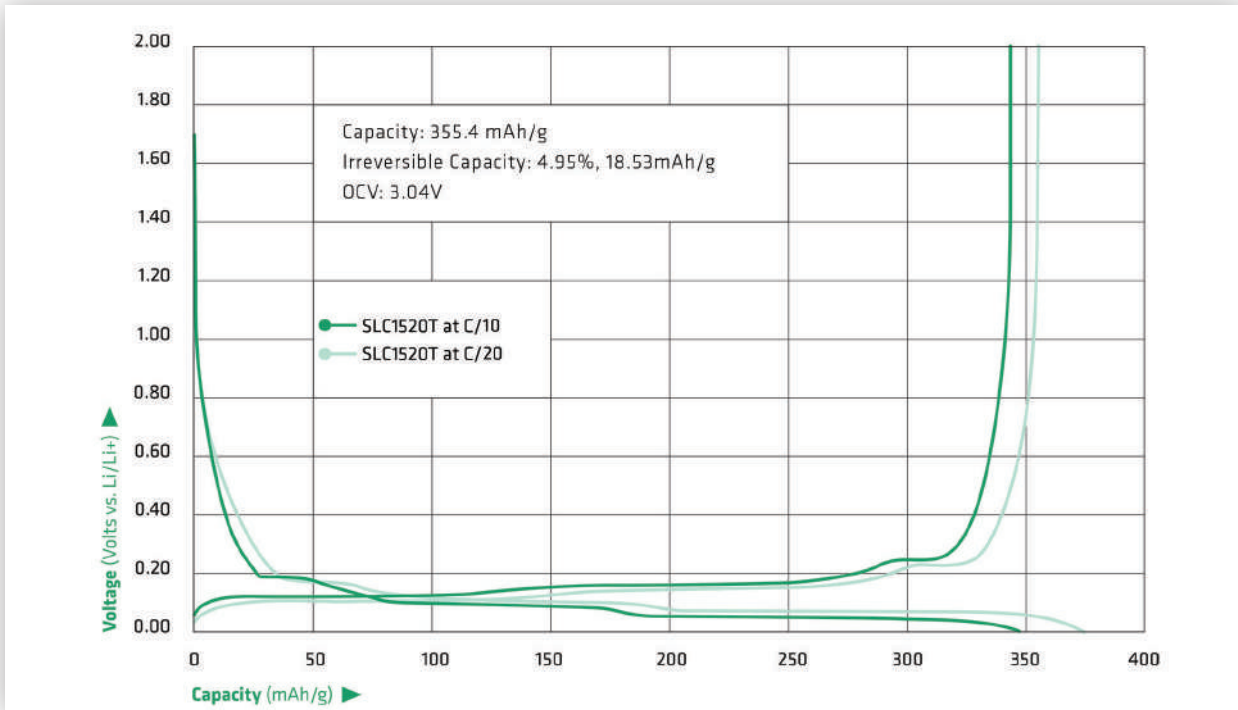
Spherical Particle Shape - Reducing the volume usage, increasing cell capacity, and providing isotropic characteristics of the electrode

Treated Surface and Low Surface Area - Forming selective permeable surface layer and minimizing the amount of lithium ions consumed for the formation of SEI layer



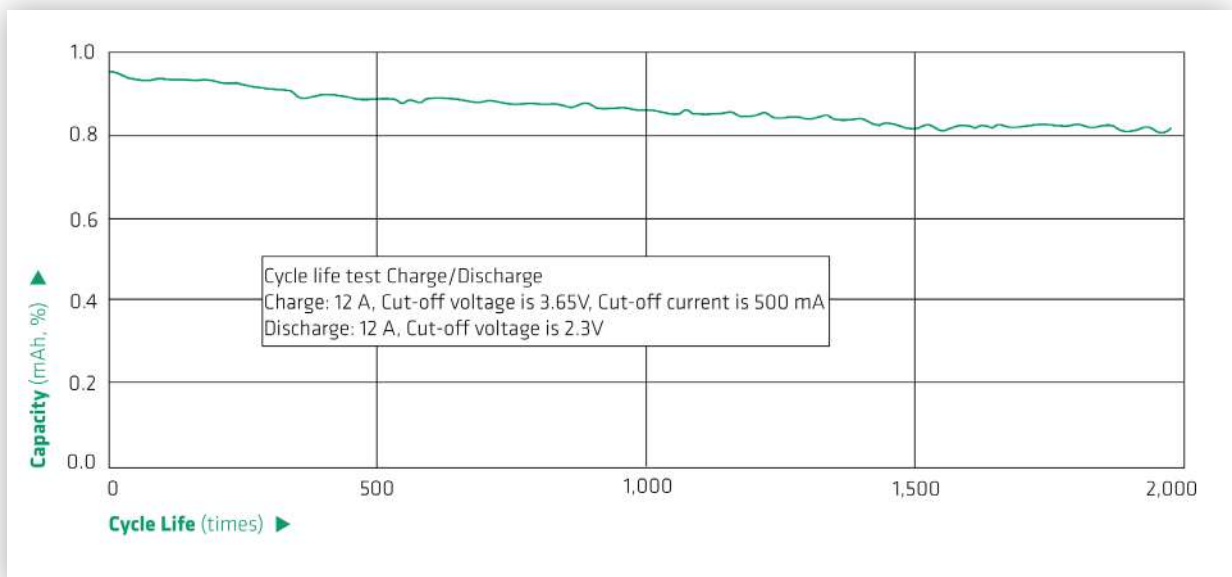
FormulaBT™ offers high reversible capacity

Charge and Discharge Capacity of FormulaBT™ SLC1520T in EC/DMC Electrolyte



FormulaBT™ offers long cycle life to meet electric vehicle requirements

FormulaBT™ SLC1520P in LiFePO₄ Battery for EV Application



FormulaBT™ Products

Graphite/Carbon Anode Materials Used in Rechargeable Li-ion Batteries

FormulaBT™ SLC series has superior performance natural flake graphite with surface treatment, spheroidal particle shape, low surface area, and various particle sizes. Other features include high capacity, low irreversible loss, high stability, PC resistance, and excellent adhesion to the substrate.

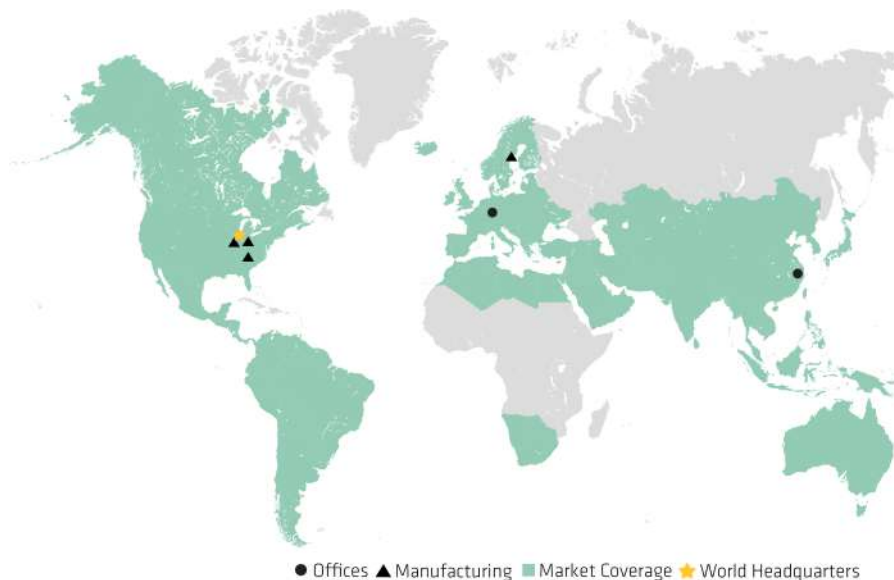
FormulaBT™ is more than just a high performance energy material. It's a philosophy:

- Our innovative research and development team provides superior solutions with customized products.
- Our dedicated production staff, combined with ISO 9001:2015 certified quality management systems ensure high quality products which meet agreed-upon specifications.
- Our extensive worldwide distribution network ensures supply chain efficiency.
- Our materials management experts secure the supply of high quality raw materials, and continuously evaluate new sources globally.



Our Mission:

We create value for our customers by providing SUPERIOR SOLUTIONS - utilizing our unique technologies, processes and talents - while contributing to the company's long-term success.



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