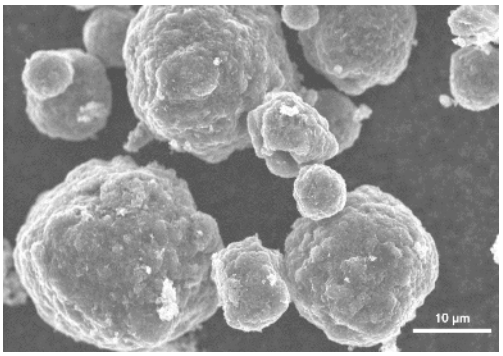
GRAPHENE-SULFUR COMPOSITE CATHODE

Sulfur is a notable alternative to today's intercalation-type cathode materials, setting itself apart by using a unique conversion chemistry whereby one sulfur atom can host two lithium ions. That results in four times more storage capability (1,675 mAh/g-sulfur). Global Graphene Group (G^3) has developed a robust graphene-sulfur cathode technology to enable batteries of the future. Fully empowered by graphene, our graphene-sulfur composite cathode offers a lightweight, high energy density battery with stable cycle life.



Micrograph of graphene-sulfur composite

Typical properties	Units	Graphene-Sulfur
Particle size D50	µm	10 - 15 (tunable)
Specific surface area by BET	m^2/g	10 - 20 (tunable)
Specific capacity	mAh/g	850 - 950
First cycle efficiency	%	> 95
Packing density	g/cm^3	1.1 - 1.3
Tap Density	g/cm^3	0.5 - 1.0

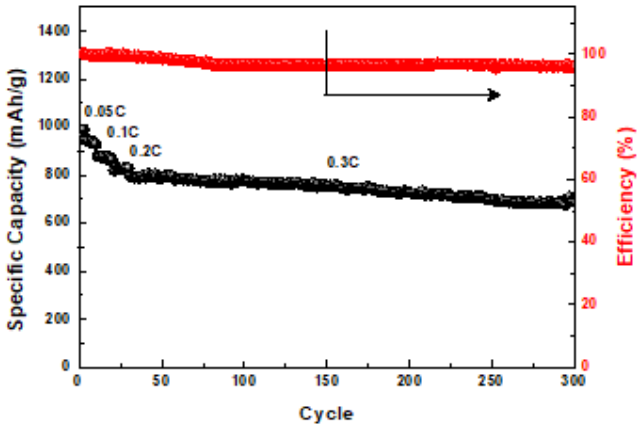
APPLICATIONS

- HALE UAVs
- Heavy EVs (buses & trucks)
- Electric aircraft

BENEFITS

- High specific energy
- Low capacity fade
- Low cost

CYCLE & RATE PERFORMANCE



MEETING THE DEMANDS OF TOMORROW

LIGHTWEIGHT

Systems using metallic lithium are known to offer the highest specific energy density, even more so when coupled with sulfur. Sulfur has a high theoretical specific energy of 2,700 Wh/kg, which is 5 times higher than a cathode of traditional lithium ion battery. Therefore, for the same energy stored, the battery is significantly lighter.

ENVIRONMENTALLY FRIENDLY

The graphene-sulfur cathode utilizes sulfur instead of heavy metals such as cobalt and nickel which have a significant environmental impact.

G³'s graphene-sulfur composite cathode development has the support of the DOD SBIR Phase I program (Li-S battery; 2018 contract number W56KGU-18-C-0012).

CONTACT US

Want to learn more? Contact G^3 at sales@g3-am.com or call 937-331- 9884.