



Performance Enhancement of Lead-acid Batteries Using CGT Lead Acid Battery additive

CGT Battery additive has been able to enhance the SOC 50 value of lead acid battery from 0.87 A to 2.12 A by adding 0.3% (w/w) of material (for single cell).

SOC 50 Comparison trails at SLINTEC Labs, Sri Lanka

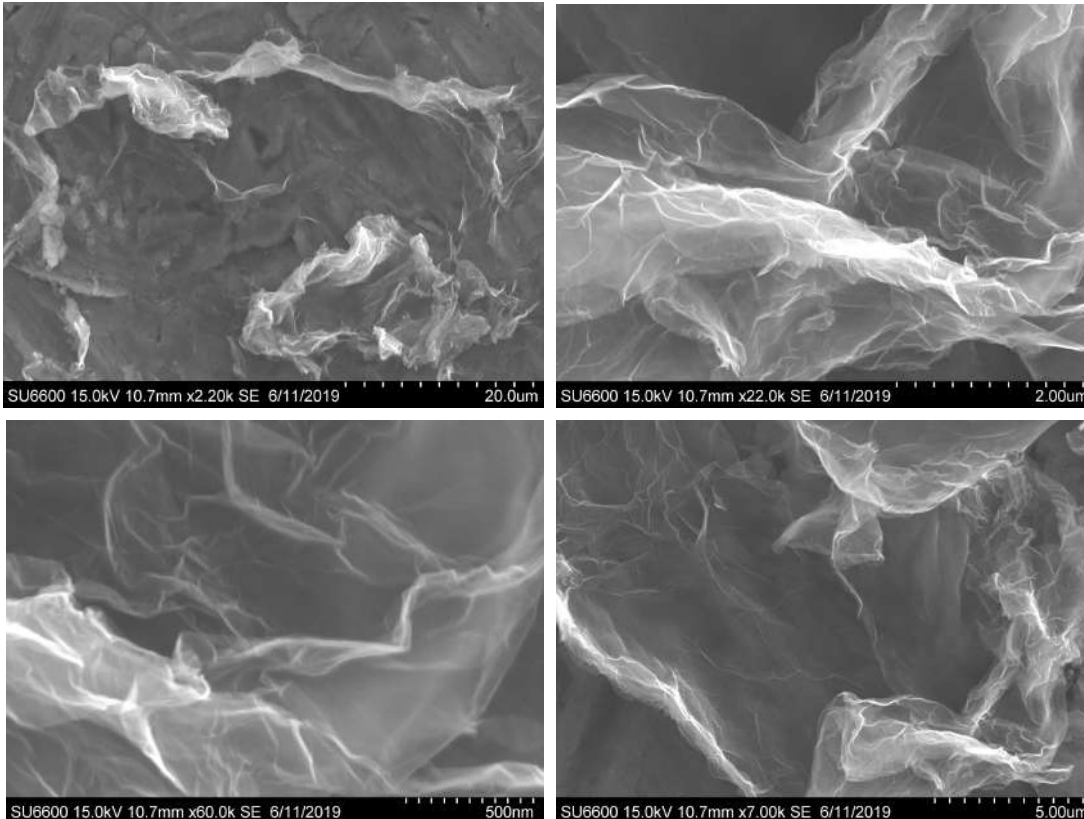
	Trail 1	Trail 2	Trail 3
Control battery plates (Carbon black 0.3%)	0.78	0.87	0.95
Control battery plates made by SLINTEC (Carbon black 0.3%)	0.93	1.13	1.09
Battery plates (CGT Battery additive 0.3%)	1.99	2.06	2.12

Performance enhancement of the battery: ~200%

Product Details

Start-up Graphite : Sri Lanka - C99+ Vein Graphite
 Appearance : Soft Black Powder Platelets
 Tapped Density : ~5.9 X 10⁻³ g/cm³

Scanning electron microscope (SEM)





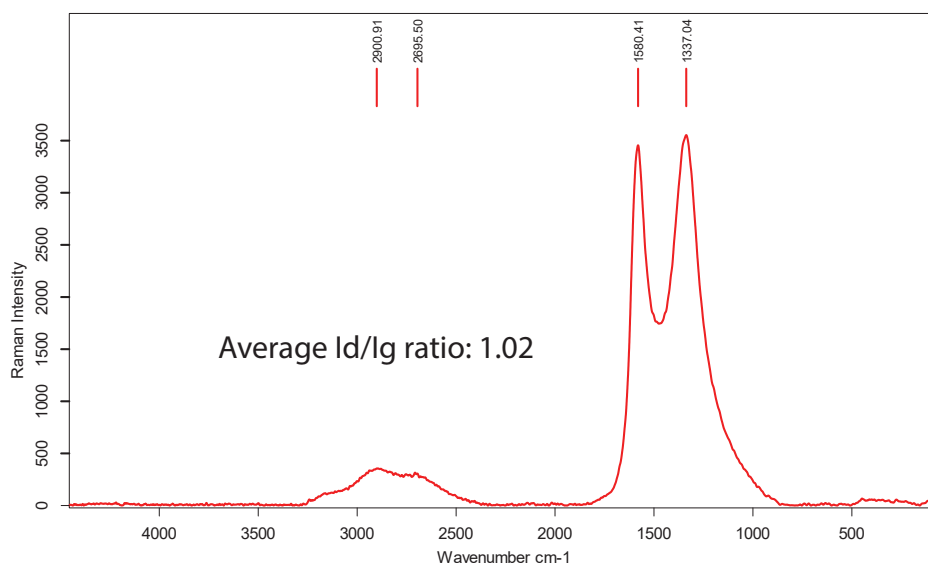
Ceylon Graphene Technologies



NATIONAL GRAPHENE ASSOCIATION

Sample	rGO
BET Surface Area (m ² /g)	538.08
BJH Surface Area (m ² /g)	688.70
Pore Volume (cc/g)	1.765
Pore Diameter (nm)	4.25

RAMAN Analysis



Advantages of CGT Battery Additives

	Property	Mechanism
1	Conductivity	Increase overall conductivity and create better conducting pathways
2	Specific surface area	High specific surface area enhance capacitance effect
3	Nucleation sites	Additional nucleation sites to form isolated smaller $PbSO_4$ particles
4	Electro-osmotic pump	Efficient acid diffusion in inner NAM
5	Ion intercalation	Enhanced local charge storage by hydrogen/ proton intercalation
6	Skeleton incorporated carbon (larger/ smaller at higher concentrations)	Increase the electroactive surface area Reduces sulfation
7	Binding properties	Better contact
8	Electro active surface area	Reduction of $PbSO_4$ to Pb in acidic medium preferably occurs on carbon surface, in addition to reaction taking place on Pb