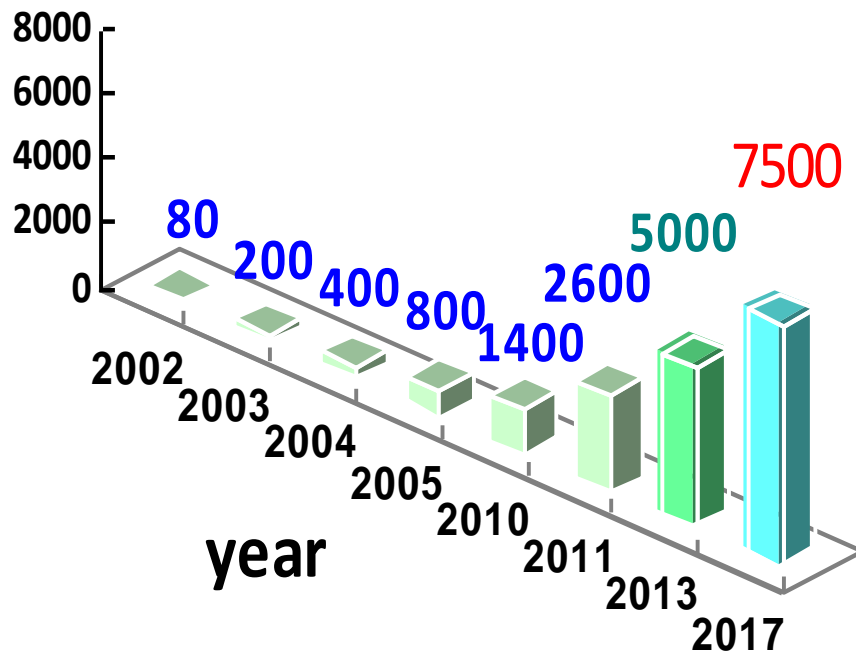


Production capacity & facilities

Capacity (T/yr)



Based on GP precursor.

Key supplier of mesophase products.

Fully automatic line.

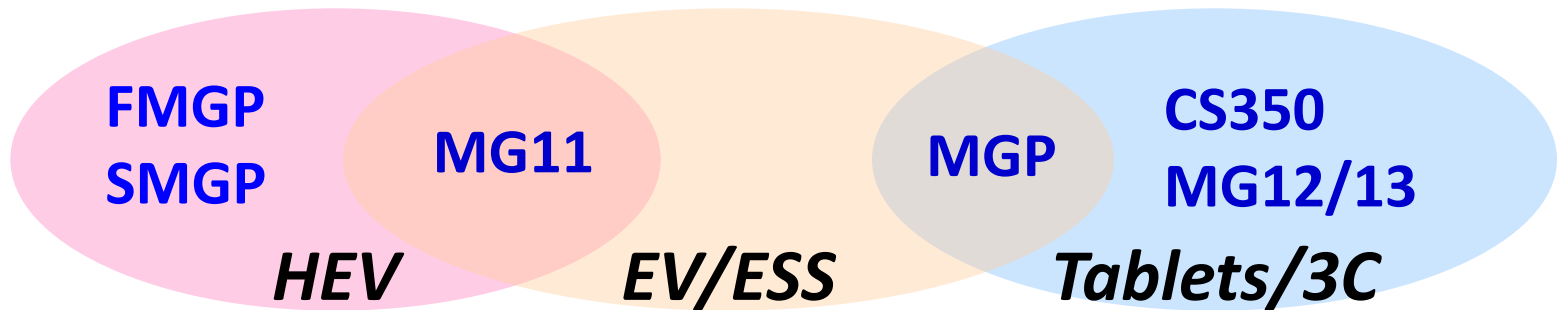
Stable & consistent quality.

- Expansion of production capacity to 7500 T/yr in 2017 is planning.

Products for various applications

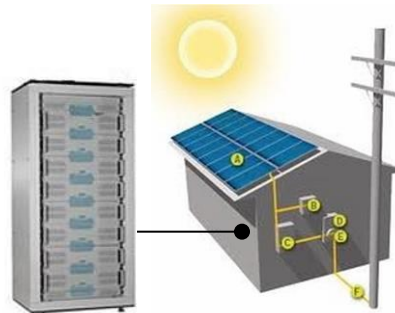
Anode capacity: Low
Rate capability: Best

High
Low



Battery energy: Low
Power request: Strong

High
Low



High Performance Anode Materials for Li-ion Battery

Product description

CSCC, a chemical company in Taiwan, can make high performance anodes with good quality from coal tar pitch coming from the parent company, CSC (No.1 Steel Maker in Taiwan). As pitch was thermally treated to be the mesophase spherules through chemical engineering processes, series of Green Mesophase Powder (GP) were obtained. The particle size of our anode powders can be decided by controlling process parameters. Such green mesophase powders can be further made as Meso-Graphite Powders after carbonization and graphitization. MGP, FMGP and SMGP series are our popular anode materials in the market. We also provide advanced anodes, MG11 and MG13 series for high rate and high energy design requirement.

Product characteristics

A. Green mesophase powders

Series	$D_{50} < 15\mu\text{m}$		$15 < D_{50} < 30\mu\text{m}$		$D_{50} > 35\mu\text{m}$
Products	GP 10	GP 12	GP 18	GP 24	GP 40
D_{50} (μm)	9 ± 2	13 ± 2	18 ± 2	25 ± 2	40 ± 3
Fixed carbon (%)	> 90				
V.M. (%)	8 ± 2				

B. High Power Meso-graphite series

Products	D_{50} (μm)	BET (m^2/g)	Tap D (g/cm^3)	True D (g/cm^3)	Capacity (mAh/g, Rev)
SMGP	8 ± 2	< 2.8	≥ 1.20	≥ 2.15	> 310
SMGP-A	8 ± 2	< 3.2	≥ 1.15	≥ 2.15	> 310
FMGP	11 ± 2	< 2.2	≥ 1.20	≥ 2.15	> 320
FMGP-A	11 ± 2	< 2.5	≥ 1.15	≥ 2.15	> 320
MG11	11 ± 2	< 2.2	≥ 1.25	≥ 2.20	> 345
MG11-A	10 ± 2	< 3.0	≥ 0.95	≥ 2.20	> 345

C. High Energy Meso-graphite series

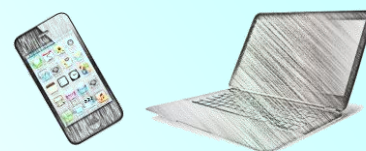
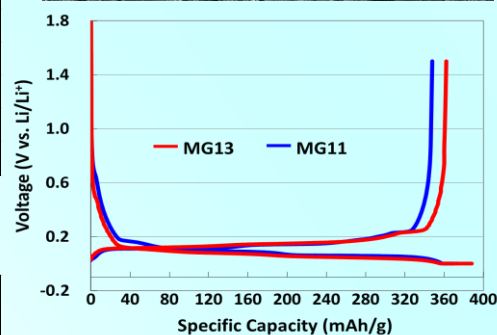
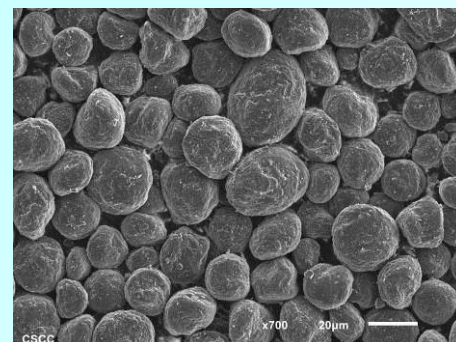
Products	D_{50} (μm)	BET (m^2/g)	Tap D (g/cm^3)	True D (g/cm^3)	Capacity (mAh/g, Rev)
MGP	21 ± 3	< 1.2	≥ 1.35	≥ 2.18	> 330
MGP-A	21 ± 3	< 1.5	≥ 1.30	≥ 2.18	> 330
CS350-A	20 ± 3	< 2.5	≥ 1.10	≥ 2.20	> 345
MG13	21 ± 3	< 1.8	≥ 1.30	≥ 2.20	> 355

As the Smart-phone and Tablet PC coming, we provide the high specific capacity anode materials with the high electrode density in SBR/CMC system for the high energy density design.

D. Soft carbon as anode for LIB in HEV/PHEV applications

Product	D_{50} (μm)	BET (m^2/g)	Tap D (g/cm^3)	True D (g/cm^3)	Capacity (mAh/g, Rev)
MSC	9 ± 2	< 2.5	≥ 1.10	≥ 2.00	> 235

Besides the mesophase graphite powders, we also provide soft carbon, MSC, for the fast charge requirement (ex: HEV). MSC has the excellent charge capability, especially at low temperature environment. The energy density of MSC also showed much higher than hard carbon.



Anode material for Lithium ion battery

CS350
MG13

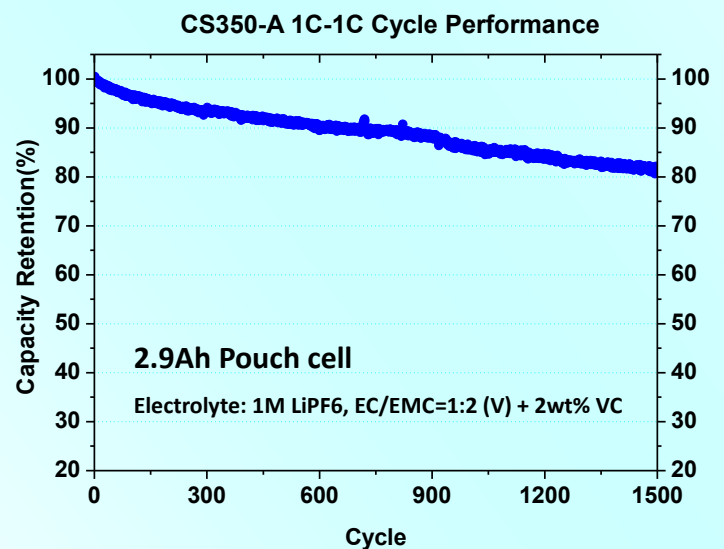
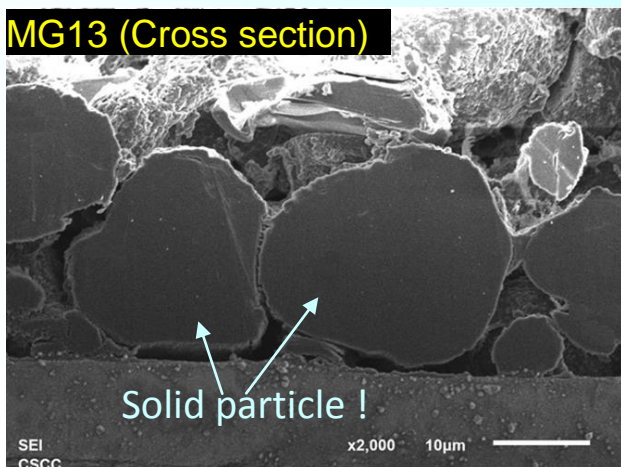
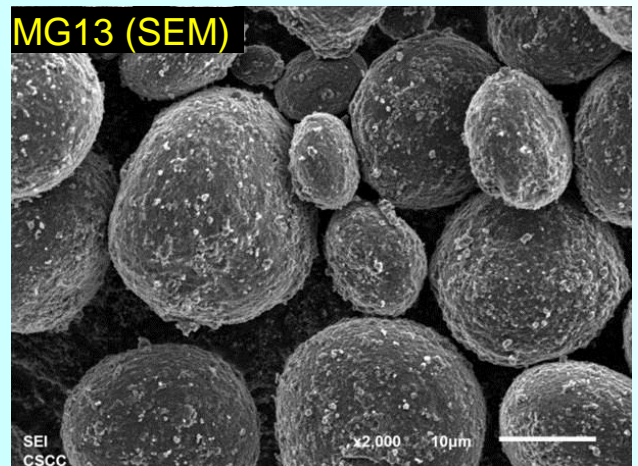
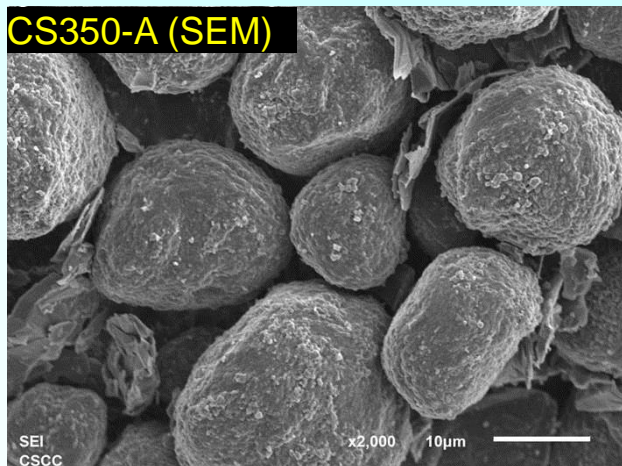
For smart phone
& tablet



Leading in Capacity of Meso-Graphite!

- High specific capacity
- High pressed density
- Long cycle life
- Suitable for SBR & PVdF

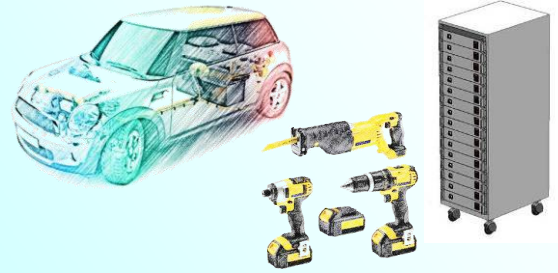
Products	D50 (μm)	BET (m^2/g)	Tap D (g/cm^3)	True D (g/cm^3)	Capacity ($\text{mAh}/\text{g, Rev}$)
CS350-A	20 ± 3	< 2.5	≥ 1.10	≥ 2.20	350 ± 3
MG13	20 ± 3	< 1.8	≥ 1.30	≥ 2.20	360 ± 3



Anode material for Lithium ion battery

MG11-A For xEV, ESS & Power tool

350 mAh/g



Leading in Capacity of Small Particle Meso-Graphite!

- High capacity 350mAh/g
- Long cycle life
- High rate capability
- PC resistance

Products	D50 (μm)	BET (m^2/g)	Tap D. (g/cm^3)	True D. (g/cm^3)	Capacity (mAh/g , Rev)
MG11-A	10 ± 3	< 2.5	≥ 1.0	≥ 2.20	350 ± 3
A company	10~13	< 3.0	> 1.15	> 2.15	≥ 320

