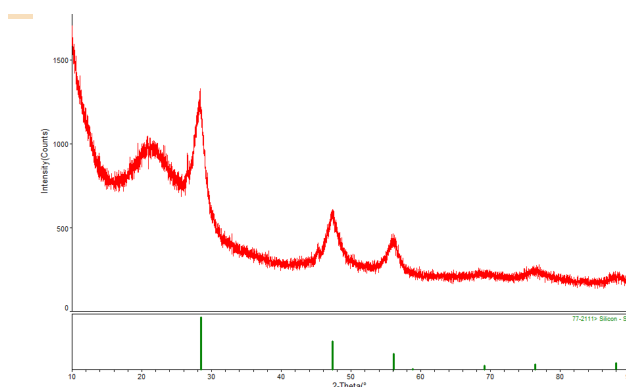
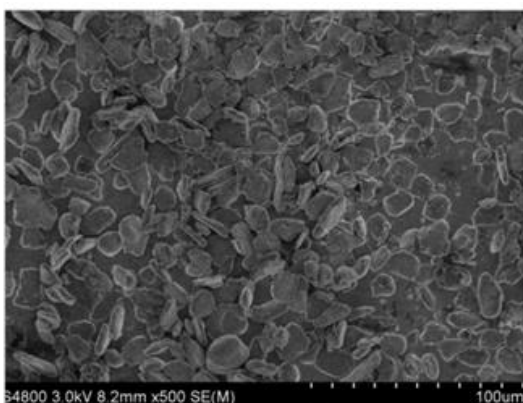


Contents

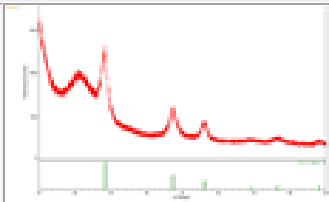
1.	Silicon/Carbon (Si/C) Composite Powder as Lithium Ion Battery Anode, 200g/bottle - EQ-Lib-SC450B.....	2
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1. Silicon/Carbon (Si/C) Composite Powder as Lithium Ion Battery Anode, 200g/bottle - EQ-Lib-SC450B



Si/C composite powder is the new generation anode material for Li-Ion battery. Silicon is formed by PVD method, and carbon is coated on the surface of Si powder, which provides a high energy density around 450 - 470 mAh/g (Half cell).

Specifications:

Part Number	EQ-Lib-SC450B
Package	200g/bottle Packed under vacuum
Si:C Ratio	1 : 9
D10	7.5+/-1µm
D50	16+/-2µm
D90	30+/-4µm
Tap Density	1.15+/-0.05g/cm ³
Specific Surface Area	1+/-0.5m ² /g
Capacity @ 0.2C	420-470mAh/g
First coulomb efficiency	> 90% +/- 1%
Typical XRD	 (Please click the Pic to enlarge)

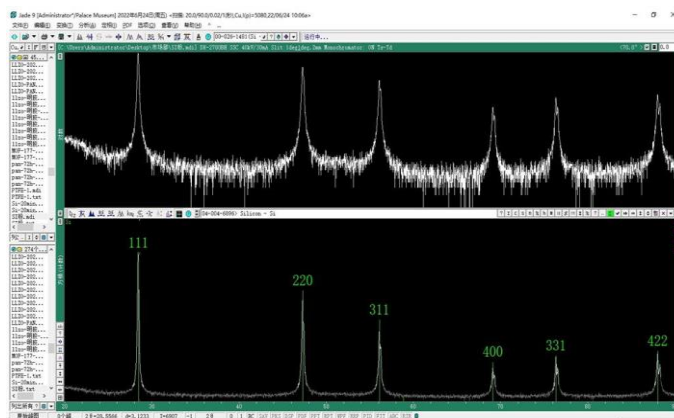
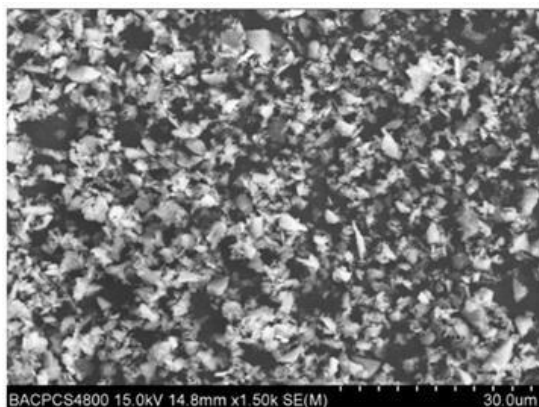


[Safety Data Sheet](#)

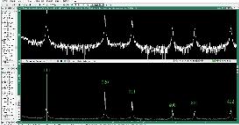
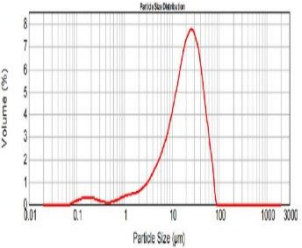



Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in vacuum box to avoid moisture.
3. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.

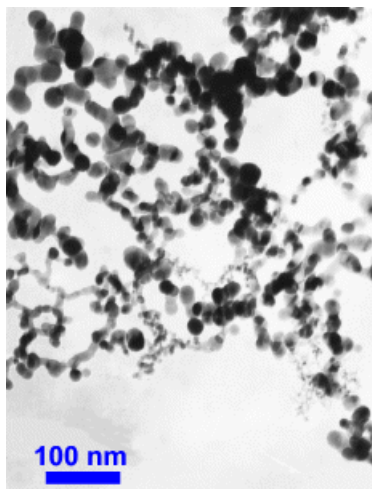
2. 100 g Polycrystalline Silicon Powder, 4N Purity, APS 1 Micron - Lib-Si1000






Specifications

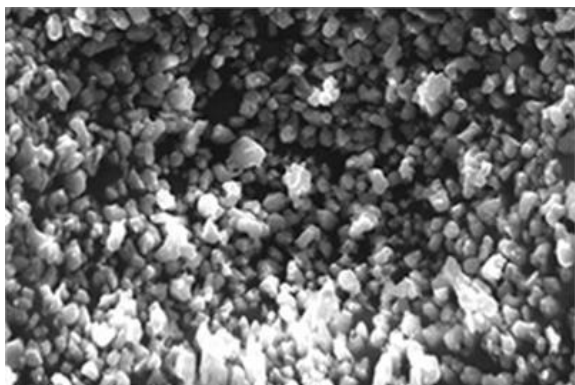
Particle size	APS 1 micron
Specific surface area	16 m ² /g
Apparent density	0.89 g/m ³
Color	Brown
Fabrication method	Ball milling
Package	100 g per bag packed under vacuum
Representative XRD	
Particle size distribution	
Transport Information	<ul style="list-style-type: none"> UN3089, Metal powders, flammable, n.o.s. (Silicon), 4.1, PG III
SDS	 Safety Data Sheet SDS
Application	Suitable for silicon anodes for Li-ion batteries and photoelectrodes for solar fuel production
Related articles	 Silicon anode-science-Meng group  Silicon anode-SI <p>Please Read the above article which described how to integrate micro-size silicon particle anode with the solid-state electrolyte of LiPSCI and NCM cathode for an all-solid-state-Li battery with high capacity and stability.</p>

3. 100 g Si (>97%, 100 nm) Nanopowder - NP-Si-P100



Specifications	Related Data
<p>Silicon (Si) nanopowder</p> <ul style="list-style-type: none"> Technology: Plasma synthesis Purity: >97% Oxygen Content: < 1.0 % APS: 100 nm SSA: > 80 m²/g Color: brown yellow Morphology: spherical Apparent density: 0.12 g/cm³ Structure: crystalline UN3089, Metal Powders, flammable, n.o.s (Silicon), 4.1, PG III 	<ul style="list-style-type: none"> X-ray diffraction pattern  Safety Data Sheet SDS Certificate of analysis Applications Warning: <ul style="list-style-type: none"> Nanopowder needed to be dispersed before use. Please click here to learn how to disperse nano power and click picture below left to order Ultrasonic processor Please always keep nanopowder in vacuum chamber or glove box to avoid aggregation (click picture below-right to order) <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>(Ultrasonic processor)</p> </div> <div style="text-align: center;">  <p>(Vacuum box)</p> </div> </div>
<p>Related Article</p>	<ul style="list-style-type: none"> Layered amorphous silicon as negative electrodes in lithium-ion batteries. Leyi Zhao, D.J. Dvorak, M.N. Obrovac, Department of Chemistry, Dalhousie University, Halifax, N.S. B3H 4R2, Canada . Received 3 June 2016, Revised 19 September 2016, Accepted 21 September 2016, Available online 29 September 2016
<p>Application Notes</p>	<ol style="list-style-type: none"> It is suggested to use Sodium Alginate as the binder for Si/C Anode You may also consider using our SBR + CMC combination Please click to see Procedure for Preparing Anode & Cathode Electrode Slurry. Please keep the powder in vacuum box to avoid moisture. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.

4. Li₄Ti₅O₁₂ (Titanate) Powder for Li-ion Battery Anode, 150g/bag - Lib-LTO




Li₄Ti₅O₁₂ powder **Coated by Carbon** for high performance and stable Li-ion battery Anode. 150g/bag and vacuum sealed in plastic bag.

Carbon coating layer improves Li intercalation/deintercalation stability.

The pristine Li₄Ti₅O₁₂ powder is white color, but the surface coating of carbon make it appear gray color.

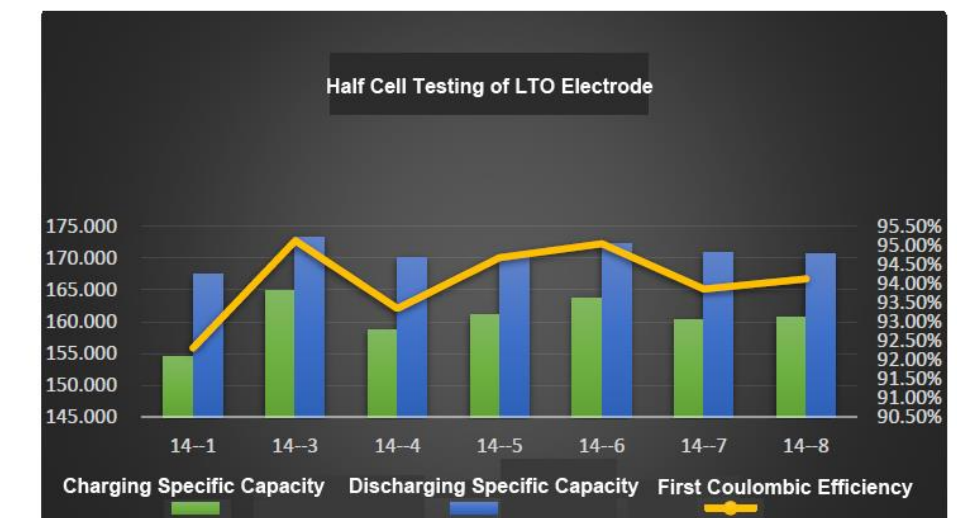
Specification

Item	Unit	Content
D10	μm	0.2~0.6
D50	μm	0.9~1.8
D90	μm	≤10.0
Dmax	μm	34
Tap Density	g/ml	≥0.65
Specific Surface Area	m ² /g	≤6.0
Purity	%	>98
Capacity at 0.5C discharging	mAh/g	>161.2
Coulomb rate at first cycle	%	95.5
Capacity at 1C discharging	mAh/g	>150.0
Capacity at 10C discharging	mAh/g	>126.1
Capacity at 1C Divided by Capacity at 0.5C	%	91.0
Material Safety Data Sheet	 Safety Data Sheet SDS	

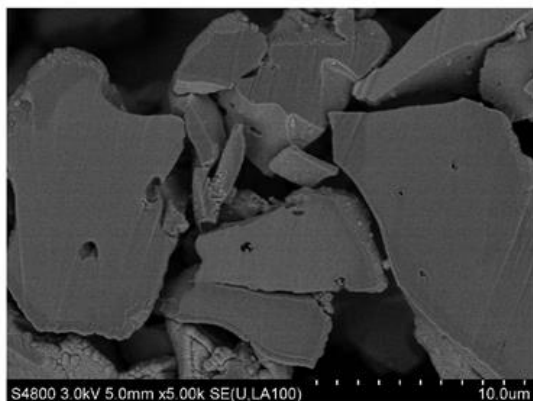
Article	Enhanced performance of sulfone-based electrolytes at lithium ion battery electrodes, including the LiNi_{0.5}Mn_{1.5}O₄ high voltage cathode
Application Notes:	<ol style="list-style-type: none"> Please click to see Procedure for Preparing Anode & Cathode Electrode Slurry. Please keep the powder in vacuum box to avoid moisture. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.

Testing Data Summary

Channel	Electrode Mass (mg)	Capacity (mAh)	Charging Specific Capacity (mAh/g)	Discharging Specific Capacity (mAh/g)	First Coulombic Efficiency (%)
14-1	24.96	1.7492	154.5892	167.4594	92.31%
14-3	24.99	1.7537	164.8845	173.3331	95.13%
14-4	24.93	1.7446	158.7583	170.0660	93.35%
14-5	24.96	1.7492	161.0746	170.1304	94.68%
14-6	24.99	1.7537	163.7714	172.3021	95.05%
14-7	24.98	1.7522	160.3780	170.8702	93.86%
14-8	24.95	1.7476	160.6639	170.6888	94.13%



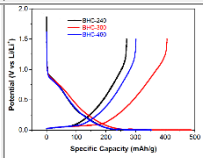
5. Hard Carbon Powder for Lithium Ion Battery Anode, 200g, SIB-BHC400



With its excellent cycling performance, SIB-BHC hard carbon (HC) can be used as anode material for lithium and sodium-ion batteries, especially for sodium-ion batteries.

SIB-BHC400 provides ≥ 400 mAh/g first discharge capacity and ≥ 82.0 % first discharge efficiency.

Specifications:

Part Number	SIB-BHC400
Package	200g/bottle
Particle sizes (D50)	7.0 ~ 11.0 μm
Specific Surface Area	$\sim 5 \text{ m}^2/\text{g}$
First discharge capacity	$\sim 400 \text{ mAh/g}$
First discharge efficiency	$\sim 82.0 \%$
Specific Capacity	 <p>Electrode composition: 93.2 wt% hard carbon powder, 2.5 wt% conductive carbon, 1.8 wt% CMC, 2.5 wt% SBR. Testing conditions: 0.005 V - 2 V</p>



[Material Safety Data Sheet](#)

Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in a vacuum box to avoid moisture.

6. High Surface Active Carbon For Super-Capacitor Electrode (70g / Bag) - AB520Y




- AB520Y is active carbon powders with extra high surface areas for preparing electrodes of a supercapacitor
- Packing: 70g per bag packed in vacuum plastic bag

Specifications:

P/N	AB520Y
BET surface area(m ² /g)	1692
Bulk density (g/ml)	0.30
Moisture (%)	0.5
Ash (%)	0.2
pH (-)	8.4
Metal (Fe) (ppm)	110
Particle Distribution (um)	D10: 1.9 D50: 5.6 D90: 9.7
Weight Capacitance (F/g x AC)	28.6
Volumetric Capacitance (F/cc)	14.8

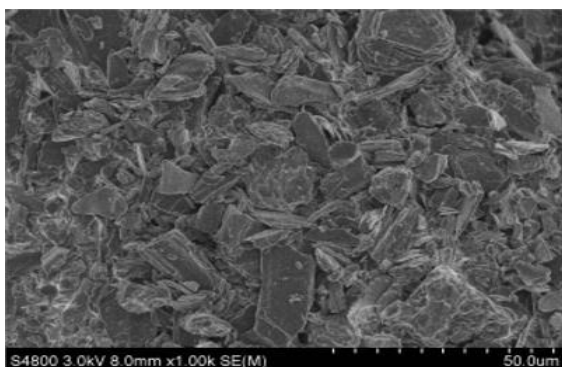
Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in a vacuum box to avoid moisture.
3. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.
4.  [Material Safety Data Sheet](#)

Notes:

1. Organic electrolyte: 1M Et₄NBF₄/PC (propylene-carbonate); Inorganic electrolyte: 3 KOH
2. Reference value (depends on the electrode density);
3. Electrode composition (%): activated carbon/conductive agent PTFE=85/10/5;
4. Capacitance base: electrode weight (30 mg/electrod)
5. Measurement: 25°C, 0-2.7 V, 2 mA (organic electrolyte); 0-0.9V, 2 mA (inorganic electrolyte)

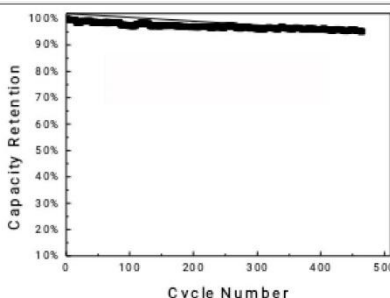
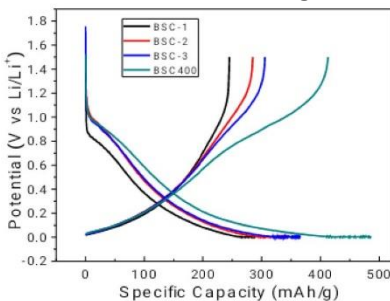
7. Soft Carbon Powder for Sodium/Lithium Ion Battery Anode, 200g, EQ-SIB-BSC



Soft carbon has attracted tremendous attention as an anode in rocking-chair batteries owing to its exceptional properties including low-cost, tuneable interlayer distance, and favourable electronic conductivity.

Specifications:

Part Number	SIB-BSC
Package	200g/bottle
Particle Size Distribution	D10: 4.0 ± 1.0 μm ; D50: 8.5 ± 1.0 μm ; D90: 16.0 ± 3.0 μm
Specific Surface Area	≤ 3.0 m^2/g
Tape Density	0.8 ± 0.1 g/cm^3
First discharge capacity	300.0 ± 5.0 mAh/g
First discharge efficiency	$\geq 84.0 \pm 1.0$ (%)
Cyclability	

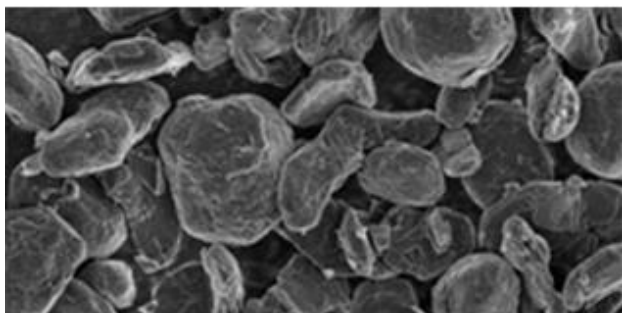


[Material Safety Data Sheet](#)

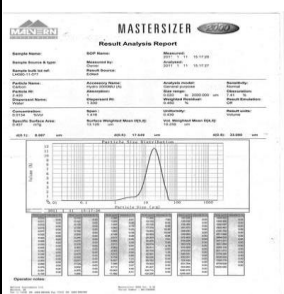
Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in a vacuum box to avoid moisture.

8. MCMB (MesoCarbon MicroBeads) Graphite Powder for Li-ion Battery Anode, 250g/bag - EQ-Lib-MCMB



- MCMB (mesocarbon microbeads) is fabricated from petroleum pitch or coal tar. Compare to artificial and natural graphite powder, low surface area of MCMB can minimize the unfavorable side reactions during the charge-discharge process.
- Appearance: Black Powder
- Package: 250g/bottle,
- container sealed in Al vacuumed bag.
- Grain size report



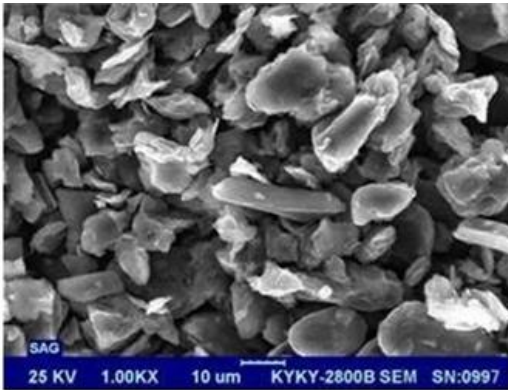
 Safety Data Sheet SDS

Parameter	Unit	Data	Testing Method
D10	μm	8.087	Mastersizer 2000
D50	μm	17.649	Mastersizer 2000
D90	μm	33.080	Mastersizer 2000
Tap Density	g/cm3	1.324	FZS4-4
Moisture	%	0.035	Sartorius HN101-Drying Tankder
Carbon (C)	%	99.96	Sartorius KSW-Heat Oven
Specific Surface Area	m2/g	2.022	ST-08 SSA
First Discharge Capacity	mAh/g	345.2	Half cell test
First Coulombic Efficiency	%	93.40	Half cell test

Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in the vacuum box to avoid moisture.
3. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.

9. Artificial Graphite Powder for Li-ion Battery Anode, 200 g/bag - EQ-Lib-CMSG



Artificial Graphite Powder for Li-ion battery Anode: Default size is 200g/bag, but 5kg/bag is also available upon request.

Artificial graphite is made from high quality cokes by novel sphericalization and nanopore introduction. Compared with natural graphite, artificial graphite has been demonstrated to show higher energy density, longer cycling durability, and lower expansion at high temperature. It was widely used for various kinds of batteries.

Specifications:

- Model: Artificial
- Particle Distribution
 - D10: 6.547 μm
 - D50: 15.097 μm
 - D90: 27.644 μm
- Moisture: ≤ 0.2
- Carbon Content: $\geq 99.70\%$
- Tap Density: 0.869 g/cm^3
- Specific Surface Area: 1.968 m^2/g
- First Capacity: 356.2 mAh/g
- First Efficiency: 95.49%

 **Safety Data Sheet SDS**

Application Notes:

1. Please click to see Procedure for [Preparing Anode & Cathode Electrode Slurry](#).
2. Please keep the powder in a vacuum box to avoid moisture.
3. Please bake the powder in a vacuum oven at 120 - 150 °C before making slurry and coating to ensure max. capacity.