Silicon light

Electrios

Electrios

As **battery demand** shifts towards **high energy** cathodes, the limitations of graphite require **silicon** additives to achieve high energy density.

In fact, silicon based anode materials are being introduced by more and more companies.

NIO & GAC announce "inorganic pre-lithiated silicon carbon negative electrode technology"

Carbon-coated **silicon oxide (SiO_x /C) & silicon-carbon** (Si/C) particles are by far the most commercially **successful** graphite composite materials.

The degree of difficulty at maintaining battery performance increases as **silicon content increases** from Si < 10% Tesla/Panasonic to 30% academic research.

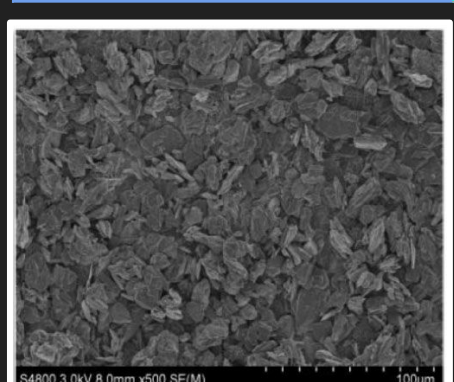
Pure silicon anodes still been a number of years away.

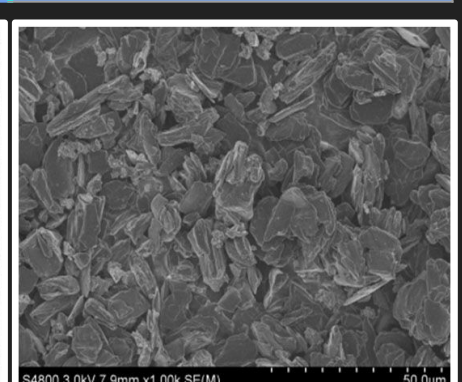
Graphite > $7k USD/ton
Silicon battery materials > $20k USD/ton

LG chem SiOX

Graphite Composites

Carbon Coated Silicon	Carbon coated SiOx
High Capacity 400-600mAh/g@0.1C	High Capacity 420-500mAh/g@0.1C
1st Efficiency 84-90%	1st Efficiency 90-92.5%
High rate	Lower expansion
Cycle Life <1000	Cycle Life >1000
	Lower expansion





Road to > 300Wh/kg is paved with little bits of Silicon

CATL: High Nickel cathode combined with silicon carbon anode with specific energy ≥304Wh/kg.

Lishen High Nickel cathode combined with silicon carbon anode with specific energy ≥303Wh/kg.

Guoxuan Hi-Tech: High nickel cathode (Ni_{80}-Ni_{90}) combined with silicon carbon anode with specific energy ≥300Wh/kg.

China Suppliers

BTR
2020- 9kt Si/C
5-10% Si

杉杉股份 Shanshan

深圳斯诺 SINUO

正拓能源 ZETO ZhengTuo Energy Technology

SHINZOOM

硅宝

紫宸科技 Jiangxi Zichen Technology Co.,Ltd.

SILA NANOTECHNOLOGIES

创亚动力 CHNM CHUANGYA POWER

中科电气 股票代码(300035)

Other Suppliers

SILA NANOTECHNOLOGIES

GROUP14

DAEJOO

NEO BATTERY MATERIALS LTD.

SHOWA DENKO

Hansol Chemical

MKE MK Electron Co.,Ltd.

Shin-Etsu

tera TERA TECHNOS

New Challenge Best Quality
otc OSAKA Titanium technologies Co.,Ltd.

DONGJIN DONGJIN SEMICHEM CO.,LTD.

	Material	Country
SILA NANOTECHNOLOGIES	Si/C	USA
GROUP14	Si/C	USA
BTR	Si/C	China
	Si/C	S.Korea
DAEJOO	SiOx/C	S.Korea
tera TERA TECHNOS	SiOx/C	S.Korea
Shin-Etsu	SiOx/C	Japan
otc OSAKA Titanium	SiOx/C	Japan
BTR	SiOx/C	China