

Electronic Supplementary Information

Through-hole graphite made from waste graphite for high rate lithium-ion battery anode electrodes

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[†] Electronic supplementary information (ESI).

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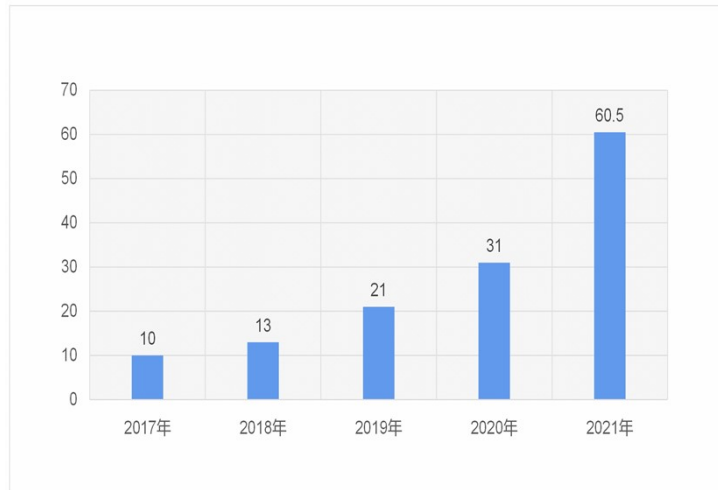


Fig. S1 Shipments of artificial graphite in China from 2017 to 2021 (10, 000 tons)

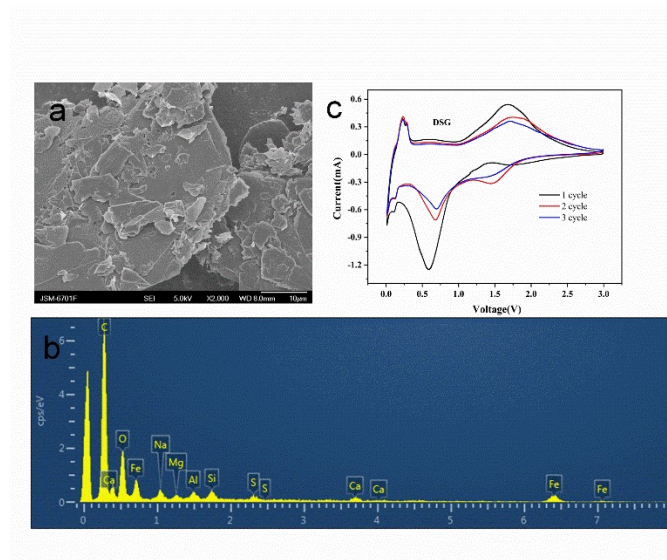


Fig. S2 SEM characterization of DSG (a). Energy dispersive spectroscopy of DSG (b).

Cyclic voltammetry curve of DSG with scanning rate of 0.1 mV s^{-1} between 0.001 V

to 3 V.

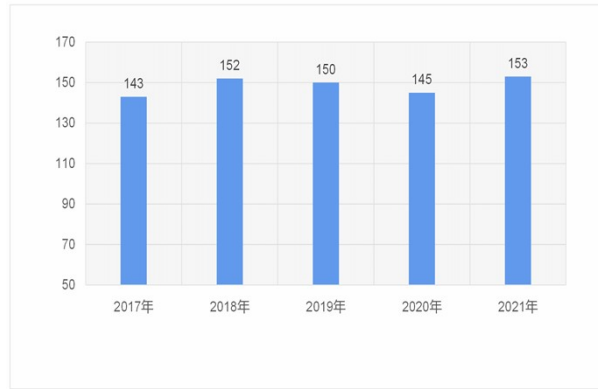


Fig. S3 Output of abrasive grade diamond in China from 2017 to 2021 (100 million carats)

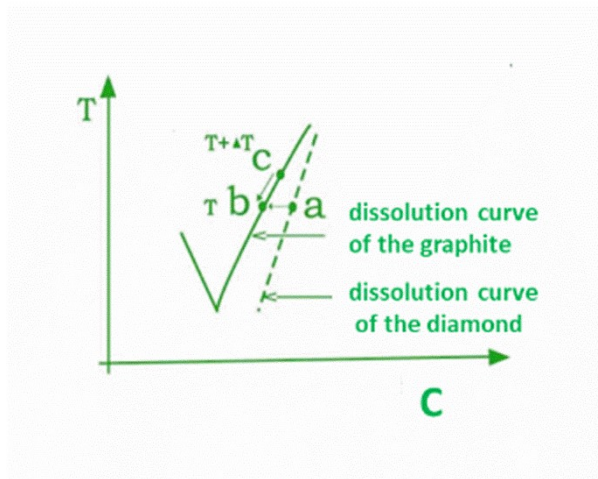


Fig. S4 Solubility curve of diamond and graphite

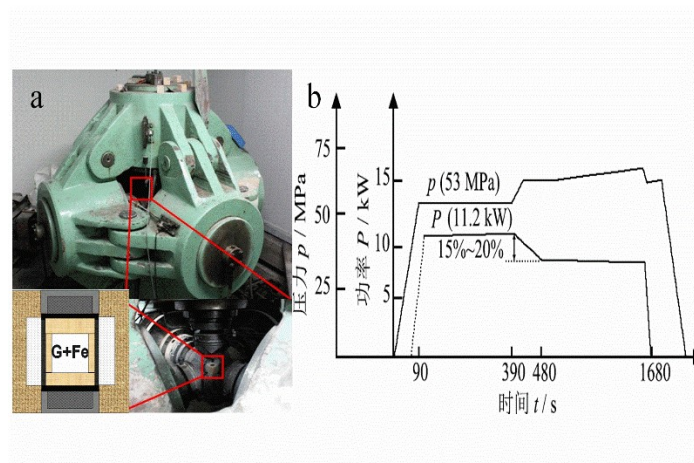


Fig. S5 hinged six-sided top hydraulic press (a). Diamond synthesis technology (b).



Fig. S6 Photos of magnetic separation equipment

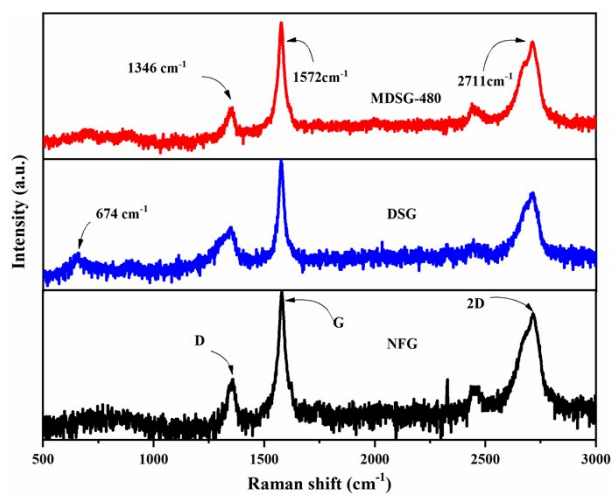


Fig. S7 Raman spectra of NFG, DSG, and DMSG-480 samples

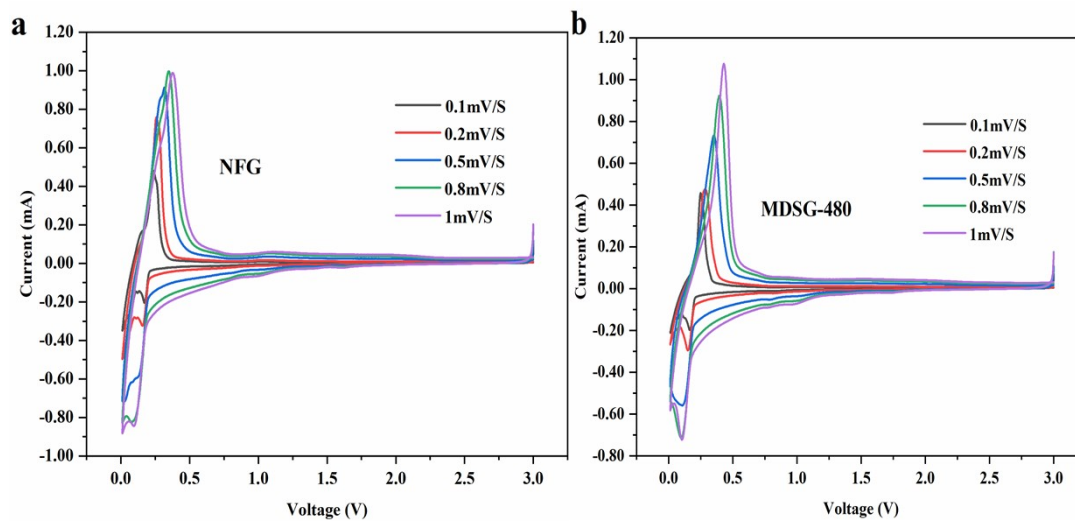


Fig. S8 Cyclic voltammetry curve of NFG (a), MDSG-480 (b).

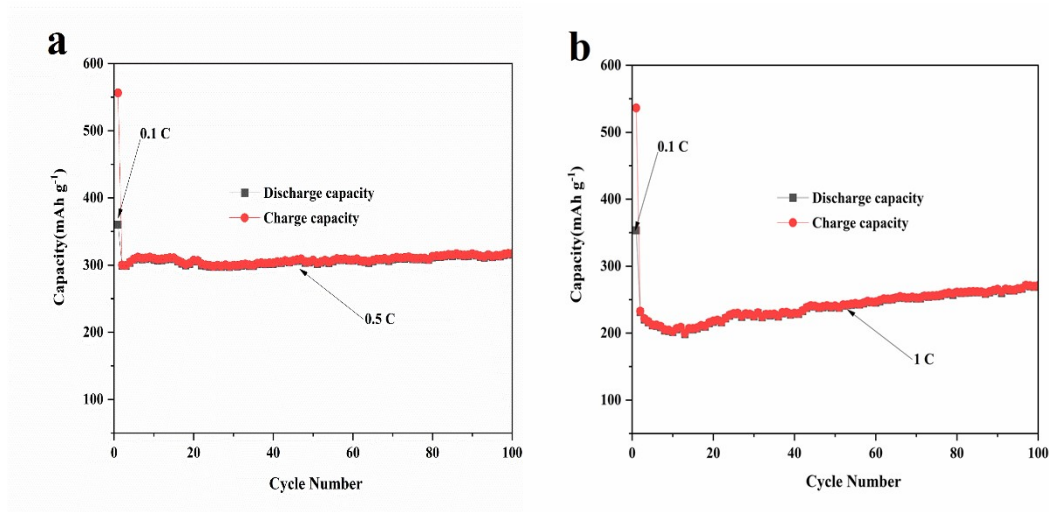


Fig. S9 Long cycle performance of MSG-480 at 0.5 C (a) and 1C (b).

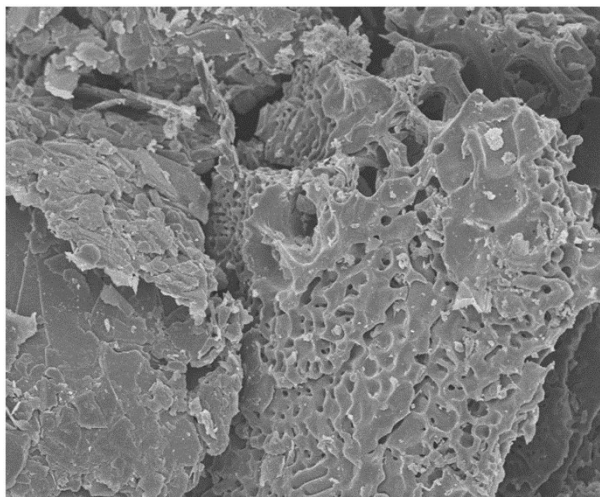


Fig. S10 Microstructure of electrode material after 1000 cycles of MDSG-480.

Table S1 ICP-OES measurement results of DSG and MDSG-480

samples	Fe (ppm)	Si (ppm)	Mg (ppm)	Ga (ppm)	Al (ppm)
DSG	38980±2898	735±73.5	813±81.3	297±81.3	231±17.4
MDSG-480	30±3.4	284±28.4	121±32.1	100±7	88±21.6