

Supplementary Materials

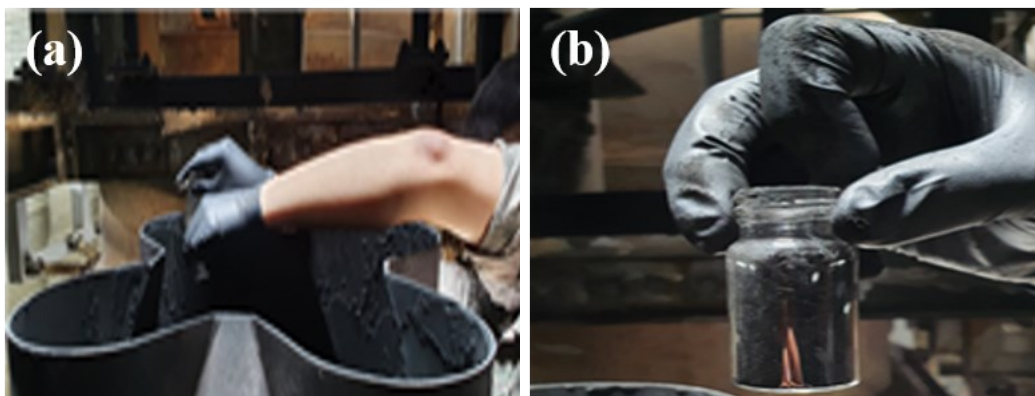


Figure S1. (a) Soot sampling and (b) the soot used in this research.

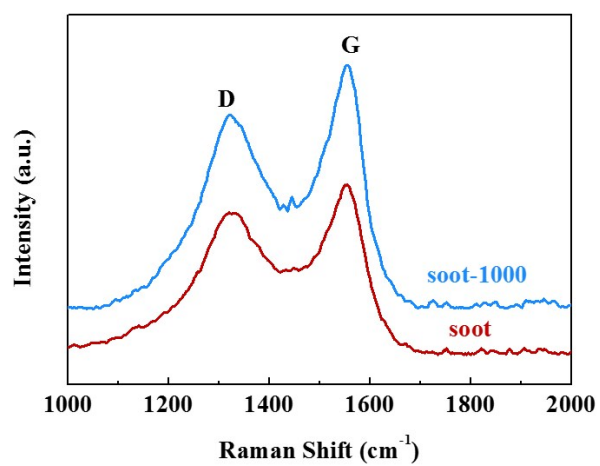


Figure S2. Raman spectra of soot and soot-1000.

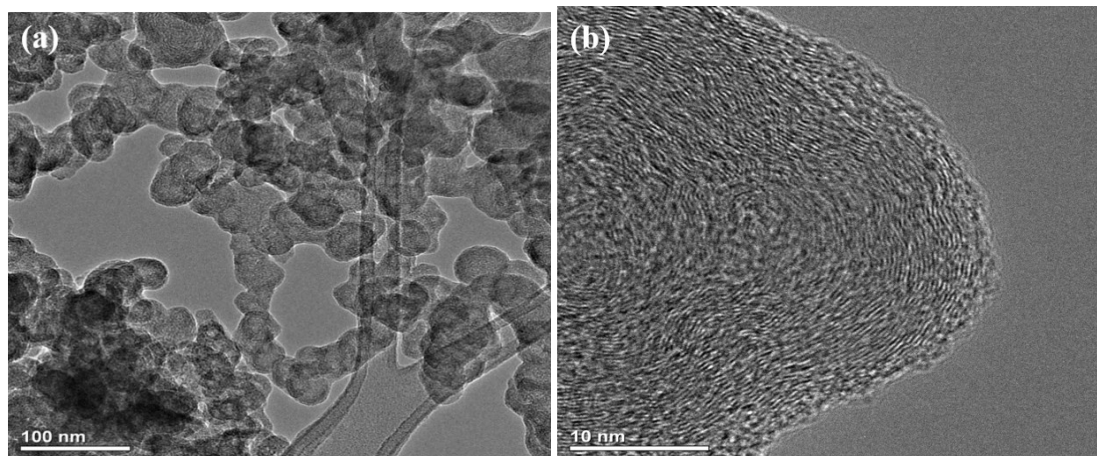


Figure S3. (a) TEM and (b) HR-TEM images of soot.

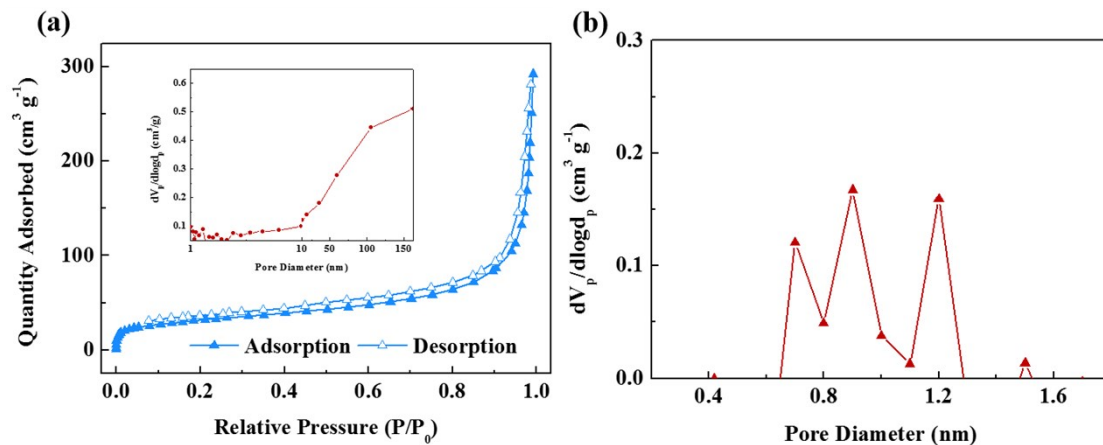


Figure S4. (a) Nitrogen sorption isotherm of soot (inset: BJH pore size distribution) and (b) micropore size distribution calculated from adsorption isotherms using the MP method.

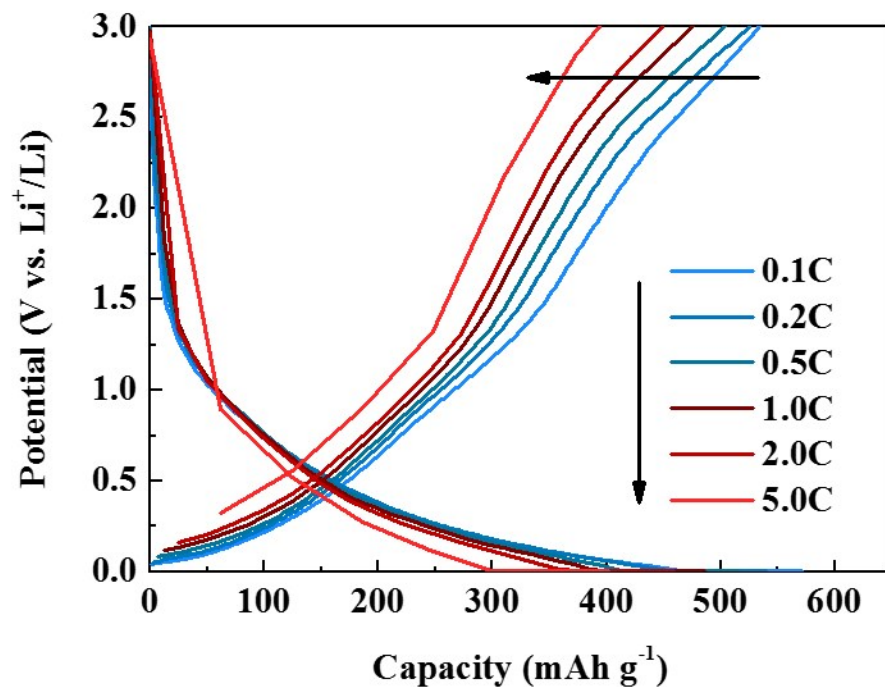


Figure S5. Charge/discharge profiles of soot-1000 from 0.1 to 5.0C.

Table S1. Specifications of MGO for naval ships (test results)

Test Item	Result
API Gravity (American Petroleum Institute Gravity)	36.6
Density at 15 °C (kg/m <sup>3</sup> )	841.3
Flash Point (°C) (m <sup>3</sup> /s)	61.0
Kinematic Viscosity at 40 °C (mm <sup>2</sup> /s)	3.357
Sulfur Mass (%)	0.0187
Cloud Point (°C)	3.0
Pour Point (°C)	-24.0

Table S2. Specifications of diesel engine

MTU 12V 1163 TB83	
Parameters	Specification
Power	3,600 kW
rpm	1,250
Compression Ratio	12:1
Bore	23 cm
Stroke	28 cm
Mean Effective Pressure	25.9 bar
Maximum Pressure	195.4 bar
Fuel Consumption	185 g/kWh ± 5%
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	225 g/kWh ± 5%

**Table S3.** Comparison of electrical properties of various carbon materials derived from different precursors.

No	Carbon source	$A_{\text{BET}}$ ( $\text{m}^2 \text{g}^{-1}$ )	Initial Coulombic efficiency (%)	Current density	Capacity ( $\text{mAh g}^{-1}$ )	Ref
1	Battleship's soot	157.83	57	1C	781	This work
2	Rice hull	332	43.77	2C	281	1
3	Wheat flour	ca. 262	< 50	1C	728	2
4	Corn stalk core	393.87	52.89	0.2C	743	3
5	Garlic peel	1710	41	100 $\text{mA g}^{-1}$	570	4
6	Prawn shell	336	-	2C	470	5
7	Unburned charcoal	22.168	60.8	100 $\text{mA g}^{-1}$	350	6
8	Sweet potato	79.1	< 50	100 $\text{mA g}^{-1}$	320	7