## **Supplementary Materials**

## Fabrication of graphite via electrochemical conversion of CO<sub>2</sub> in

## CaCl<sub>2</sub> based molten salt at a relative low temperature

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Fig. S1 Electrochemical apparatus used for graphite deposition in this research.



Fig. S2 The cell-voltage versus time curves during initial three pulses for each condition.



Fig. S3 Photos of the cathode and anode before and after electrolysis



Fig. S4 XRD pattern of 8Ni•2TiO<sub>2</sub> before sintered, after sintered and after electrolysis.



Fig. S5 SEM images of PC-4 (a, b) and PC-5 (c, d)



Fig. S6 XPS spectra for C 1s of PC-1, PC-2, PC-3 and DC-1

Sample Element	PC-1	PC-2	PC-3	DC-1
C (At%)	82.8	83.0	84.1	82.9
O (At%)	17.2	17.0	15.9	17.1

Table S1 The C and O atom content of samples obtained by pulse current electrolysis