Supporting information for

Producing hierarchical porous carbon monoliths from hydrometallurgical recycling of spent lead acid battery for application in lithium ion batteries

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Figure S1. TGA analysis of porous carbon produced at different temperatures

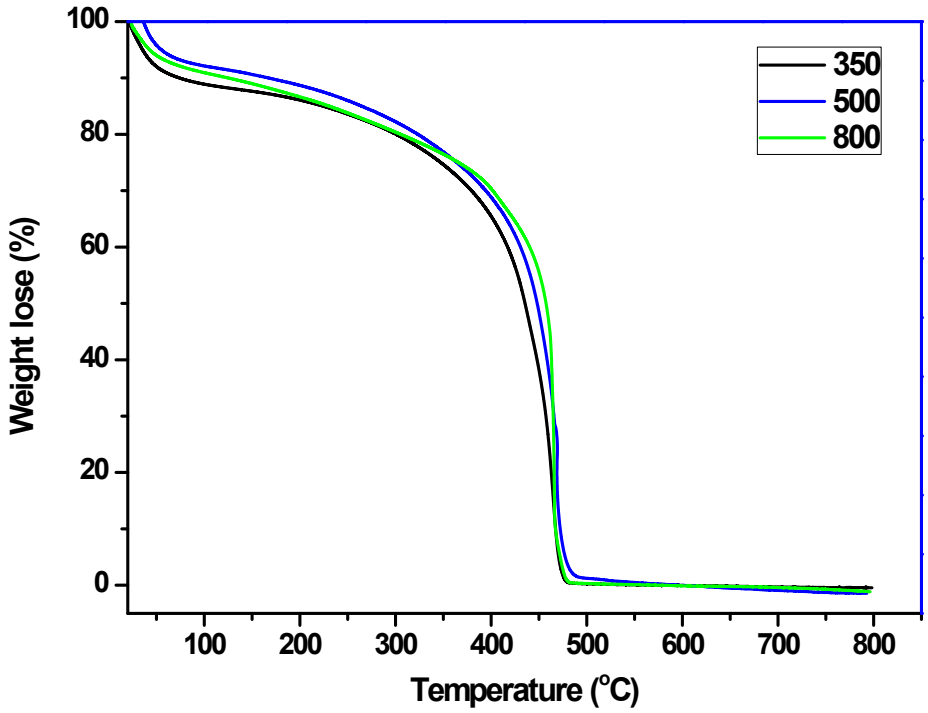


Figure S2.EDX mapping results of porous carbon produced at 500°C: (a) SEM image of the sample area on which mapping was carried out. (b)Carbon map; (c)Carbon and oxygen mixture map; (d) Oxygen map

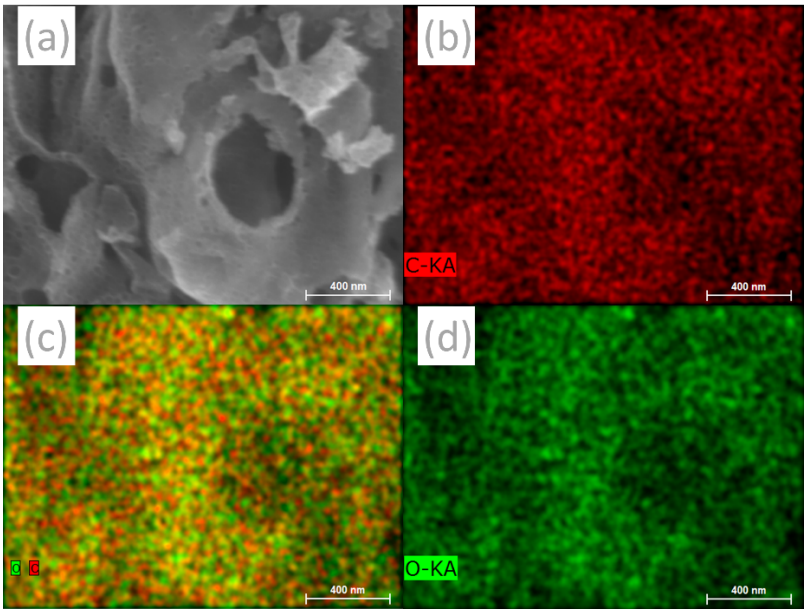
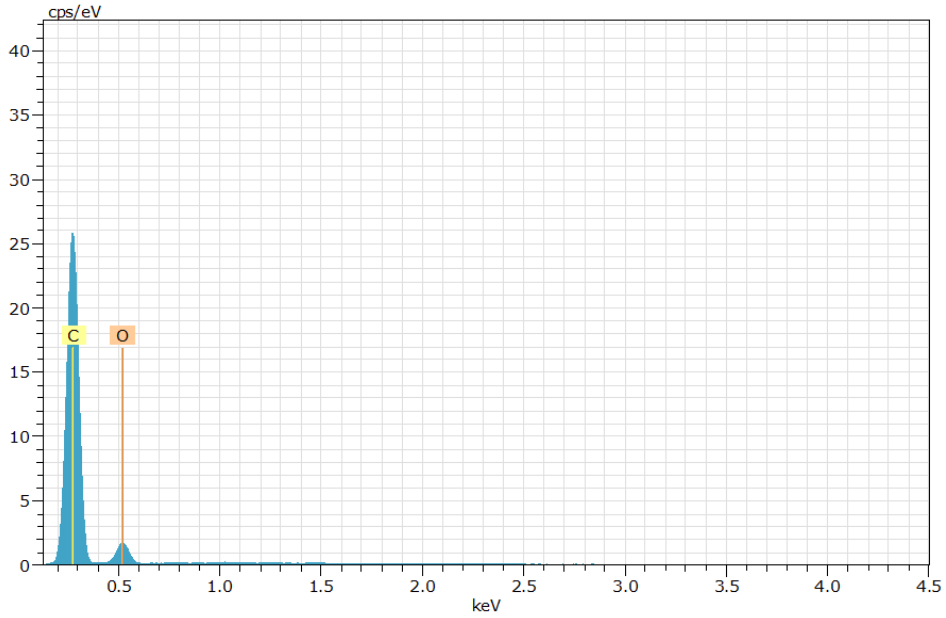


Figure S3. EDX spectrum of porous carbon produced at 500°C



The porous carbon material was ambiguously confirmed by the energy dispersive X-ray spectrometry (EDX) mapping analysis (Fig. S2). The main element is carbon and oxygen, some functional group might be formed by carbon and oxygen. Lead has almost been removed from the carbon materials.

Figure S4. The FT-IR spectrum of porous carbon produced at 500°C

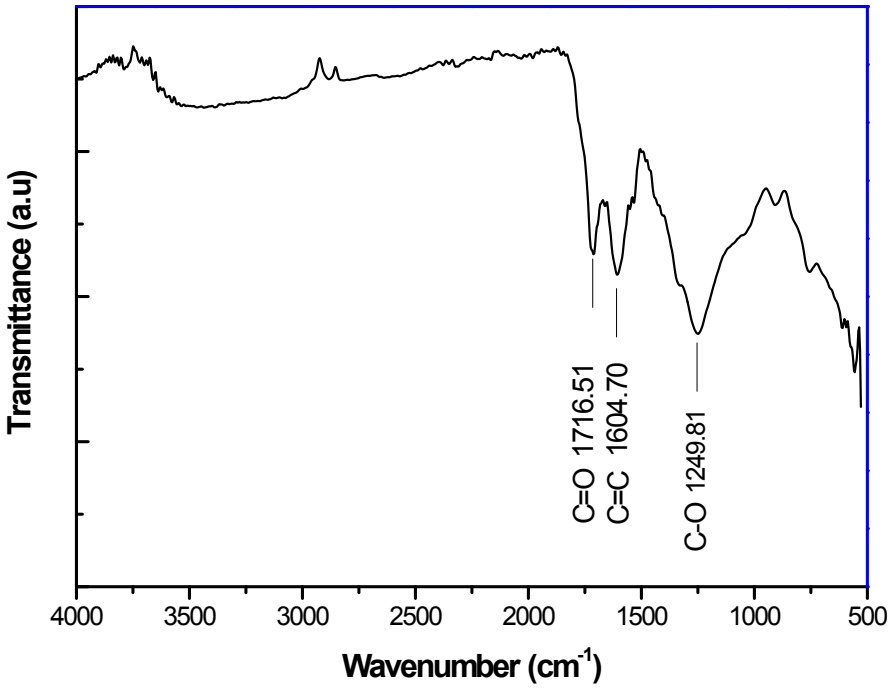


Fig. S4 shows the FT-IR spectrum of porous carbon produced at 500°C. The three peaks at 1249 cm-1. 1604 cm-1 and 1716 cm-1 can be respectively allocated to C-O, C=C and C=O stretching vibration.