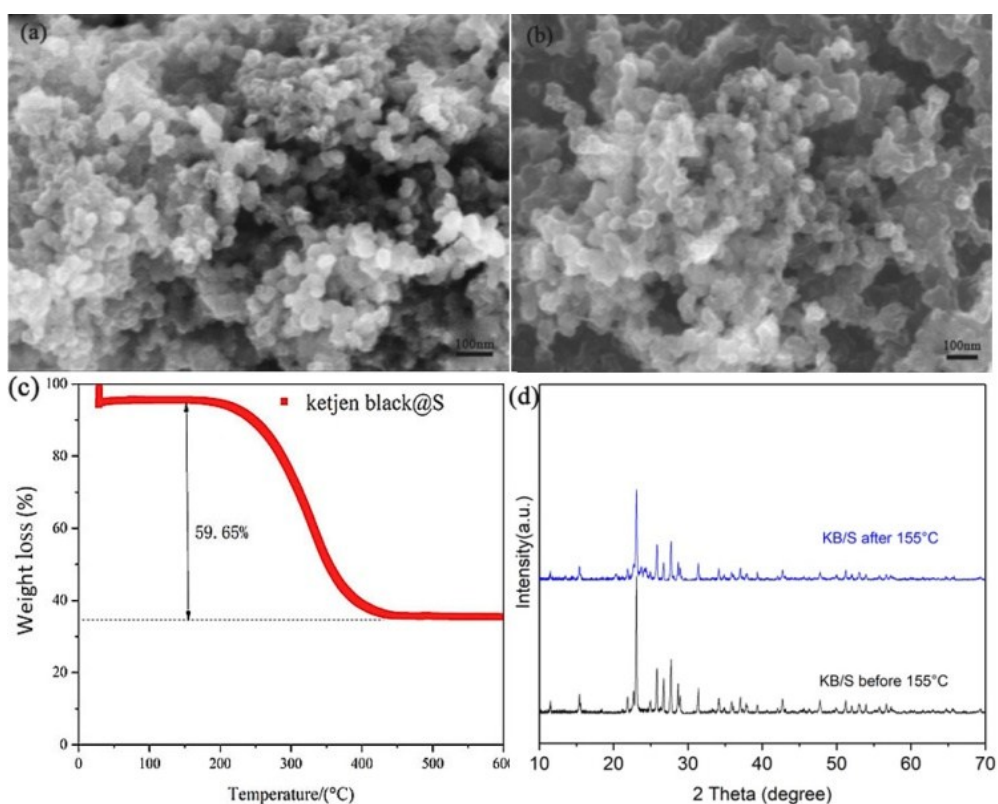
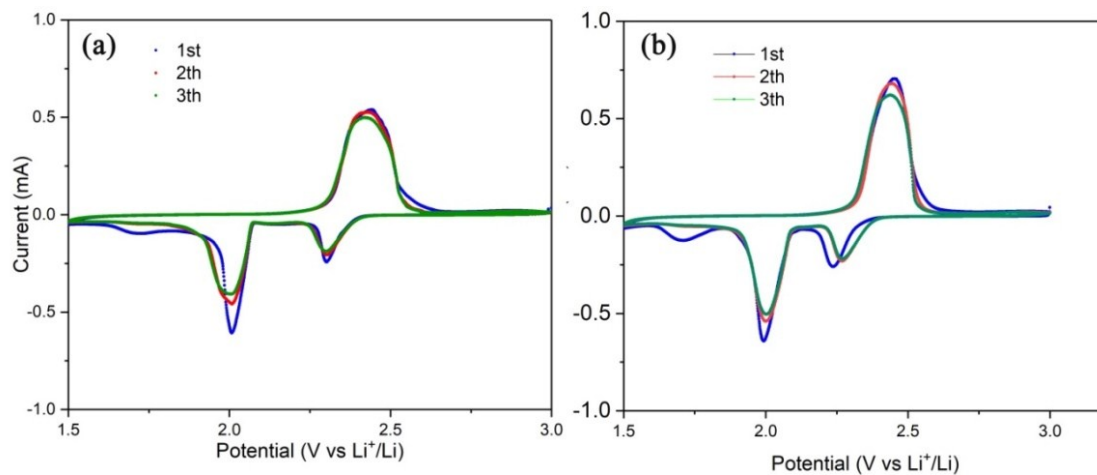


## Supporting information

### Enhanced performance of lithium-sulfur battery based on the single-sided chemical tailoring, and organosiloxane grafted PP separator



**Fig. S1** SEM images of (a) KB and (b) KB/S; (c) TG curve of KB/S; (d) XRD patterns of KB/S cathode before and after 155 °C



**Fig. S2** CV profiles of (a) PP, (b) PP-O<sup>x</sup>-U at 0.1 mV s<sup>-1</sup>

Table S1. Impedance parameters of the Li-S batteries with the three different separators before and after 500 cycles

Samples	Before cycling			After cycling		
	R <sub>s</sub> (Ω)	R <sub>ct</sub> (Ω)	R <sub>i</sub> (Ω)	R <sub>s</sub> (Ω)	R <sub>ct</sub> (Ω)	R <sub>i</sub> (Ω)
PP	8.02	41.46	11.52	9.1	186.07	151.11
PP-O <sup>x</sup>	7.43	38.61	---	8.48	67.03	---
PP-O <sup>x</sup> -U	4.5	31.94	9.47	5.51	35.06	14.15