

Supporting information

Composition-Induced Solvent Effect Regulation toward Ultrafast and Selective Recovery of LCO Cathodes from Spent Lithium-Ion Batteries

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Table S1. Compared experiment for pristine LCO and simulated LCO (LCO:PVDF:C:Al = 8:1:1:4) on the metal leaching efficiency, concentration and selectivity

Factors	c_{Li}/ppm	c_{Co}/ppm	$\eta_{Li}/\%$	$\eta_{Co}/\%$	$\eta_{Li/Co}$
Pristine LCO	1420.1±24.6	796.5±31.7	83.9±1.2	5.5±0.1	15.3
Simulated LCO	988.1±21.5	3441.5±73.2	70.9±1.3	23.9±0.5	3.0

Table S2. The metal concentration, efficiency and selectivity for LCO, LFP and NCM LIBs cathodes in the CSER strategy

Cathode	LCO	LFP	NCM
c_{Li}/ppm	1641.5±43.1	769.1±10.2	566.1±40.1
c_{Co}/ppm	501.1±153.8		820.3±18.0
c_{Fe}/ppm		7779.8±50.6	
c_{Ni}/ppm			1877.6±72.2
c_{Mn}/ppm			929.0±43.8
$\eta_{\text{Li}}/\%$	98.3±1.1	78.7±1.0	42.5±3.0
$\eta_{\text{Co}}/\%$	3.5±0.8		36.2±0.8
$\eta_{\text{Fe}}/\%$		92.0±0.6	
$\eta_{\text{Ni}}/\%$			33.3±1.3
$\eta_{\text{Mn}}/\%$			29.3±1.4
$\eta_{\text{Li/Co}}$	28.2		1.2
$\eta_{\text{Li/Fe}}$		0.85	
$\eta_{\text{Li/Ni}}$			1.3
$\eta_{\text{Li/Mn}}$			1.5