

Supporting information

Direct recycling of EV production scrap NMC532 cathode materials

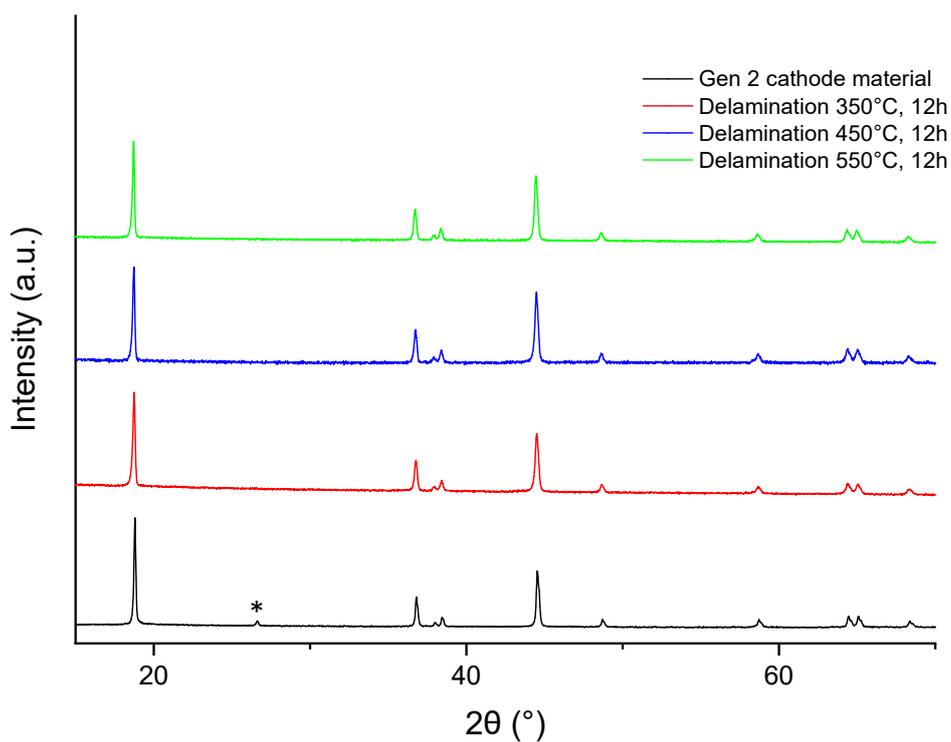
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S1. ICP-OES analysis of cathode material before treatment.

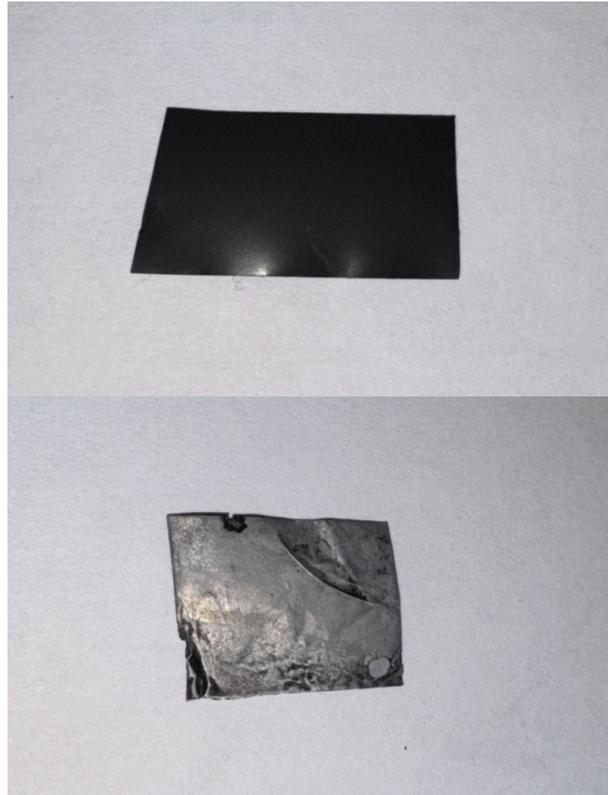
	%mass								
	Li	Mn	Ni	Co	Al	Cu	Undissolved	Total	Unmeasured
Cathode material	6.0	13.0	23.5	11.8	8.2	0.0	5.1	67.7	32.3



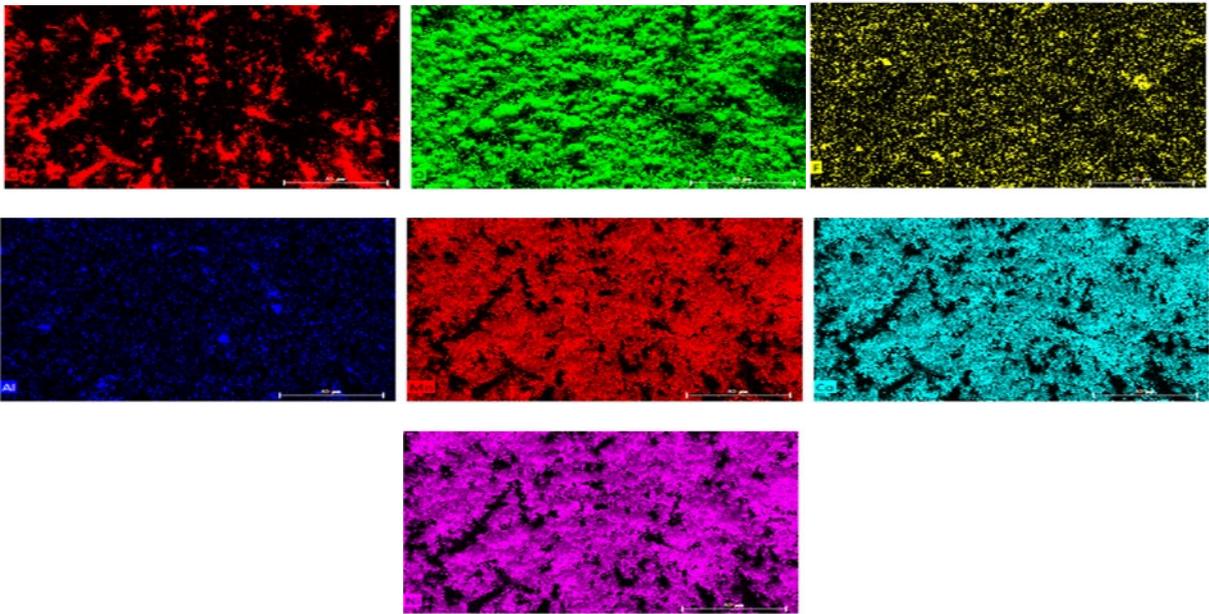
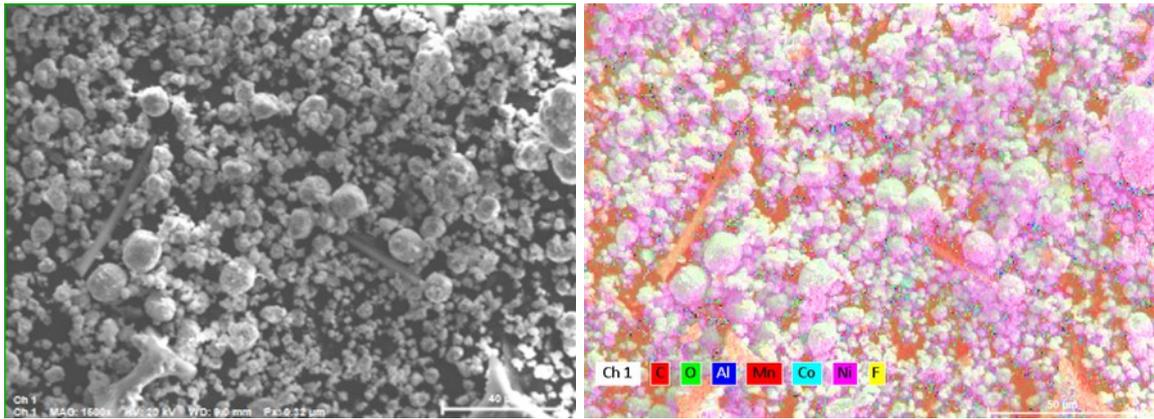
S2. XRD patterns of cathode material a) before treatment (black), b) after delamination firing at 350°C for 12h (red), c) after delamination firing at 450°C for 12h (blue) and d) after delamination firing at 550°C for 12h (green). Carbon peaks denoted by an asterisk (*).

S3. ICP-OES molar ratio of thermally treated cathode materials.

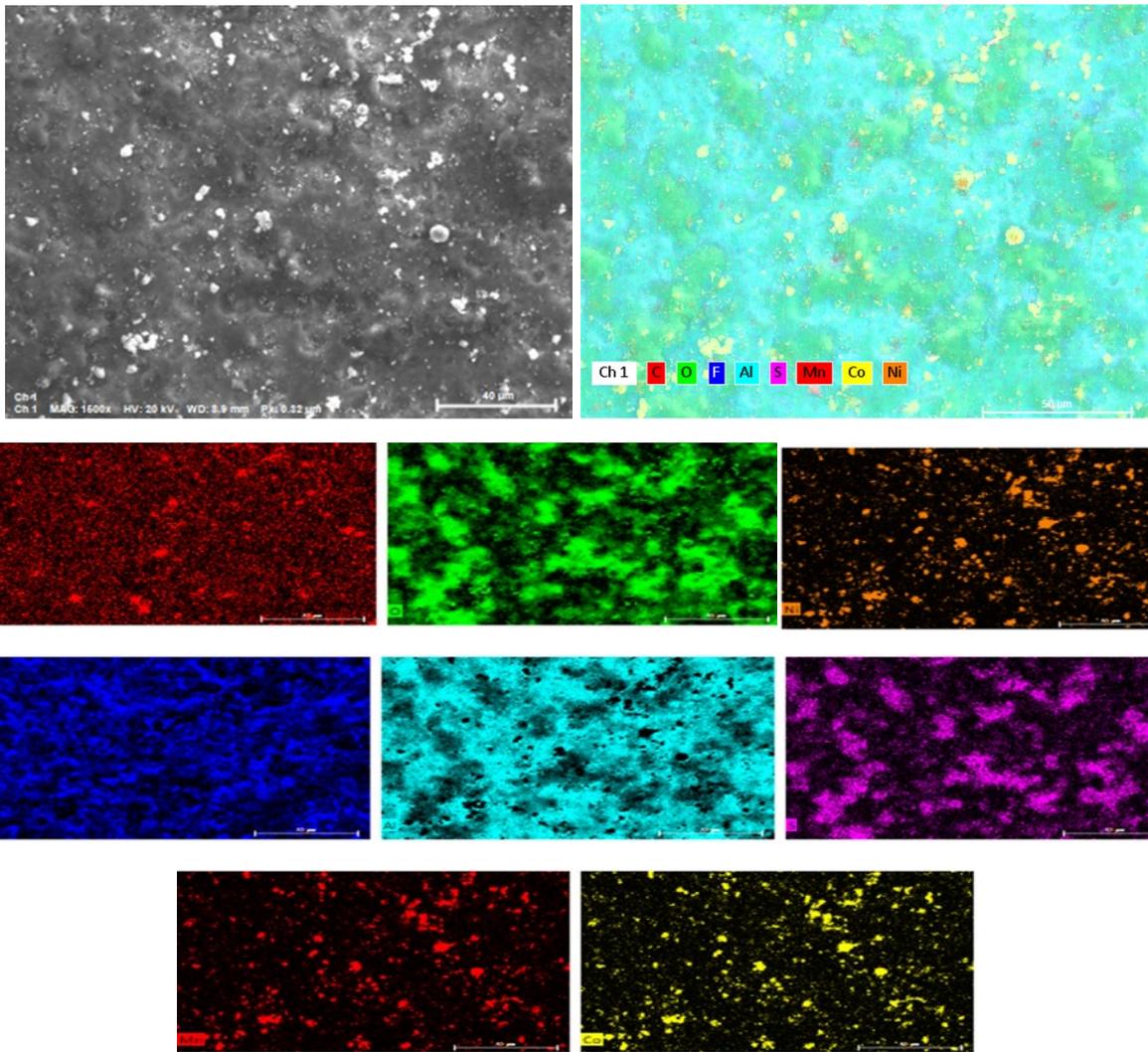
	Molar ratio			
	Ni	Mn	Co	Li:M ratio where M=Mn, Ni and Co
Thermal treatment: 500°C in air for 3h	0.48	0.28	0.24	0.97



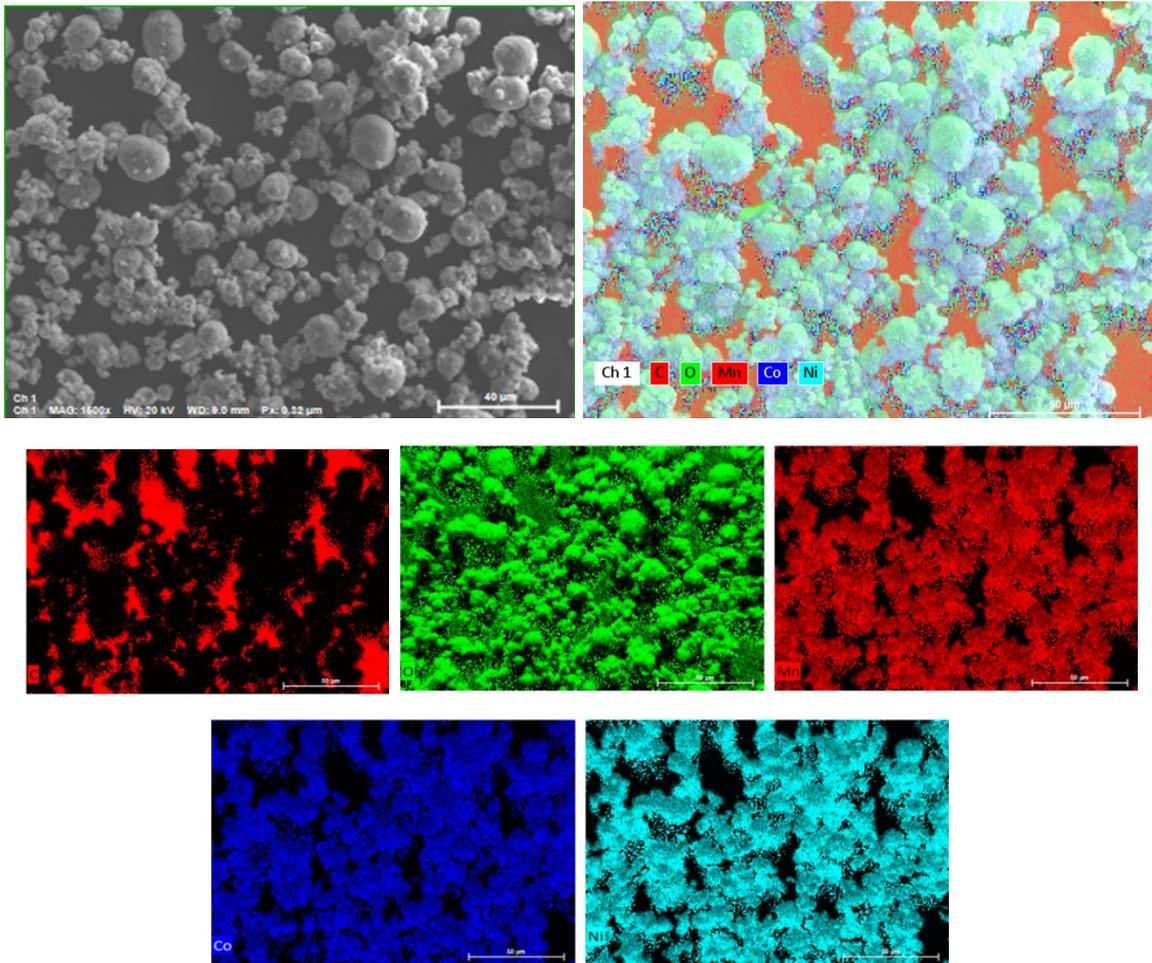
S4. Images of cathode coating on Al foil before heat treatment (top), after heating to 500°C for 3h and removal of cathode material (bottom).



S5. SEM EDX images of cathode material before thermal treatment.



S6. SEM EDX images of aluminium current collector after delamination.



S7. SEM images of cathode material after relithiation (500°C for 3h in air followed by 825°C for 3h in O₂ with 10 wt% LiOH.H₂O) illustrating complete removal of F.