

Opportunity

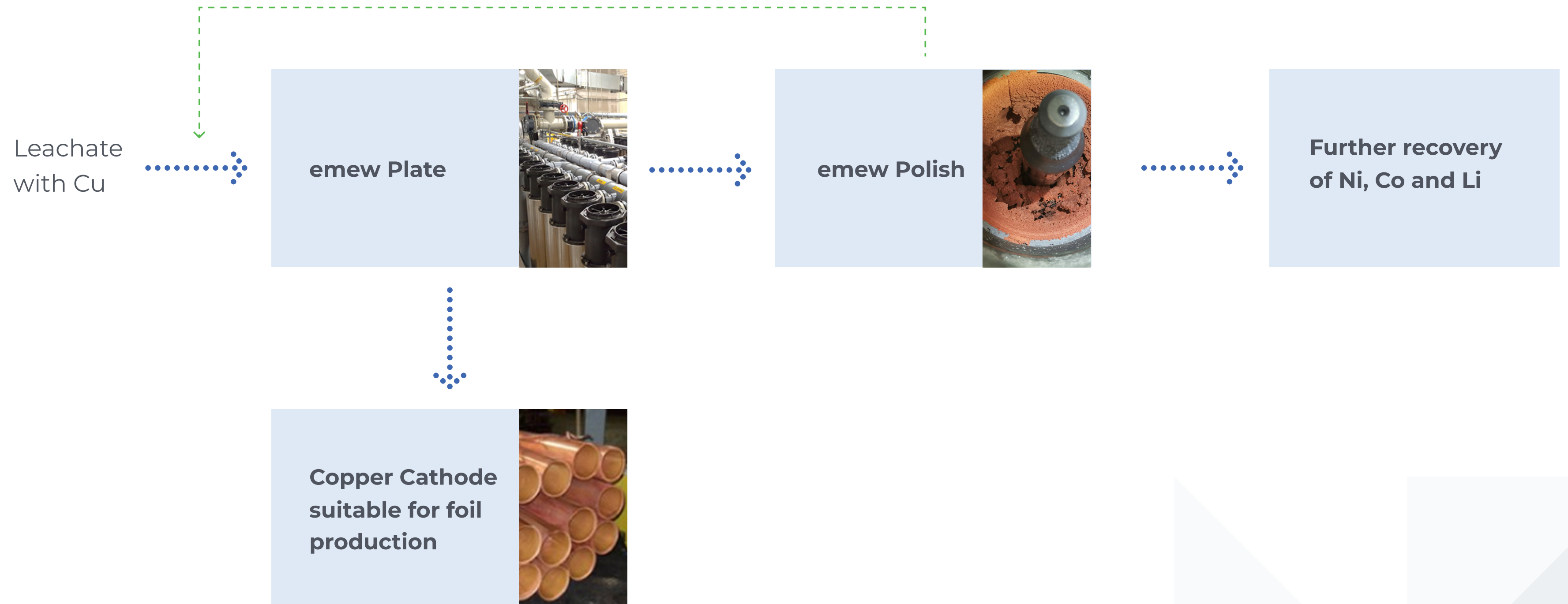
Lithium-ion battery recycling is an important process for both environmental and economic reasons. However, the recycling process can be challenging, and copper removal is often a key step in the process.

Copper is one of the valuable metals that can be recovered from battery black mass during the recycling process.

The recovery of copper from battery black mass typically involves hydrometallurgical processing, which involves dissolving the materials in acid. This process is complex and requires specialized equipment and expertise.

Solution – Avoid SX/IX or Copper sulfide precipitation

The solution offered by emew helps avoid SX/IX or copper sulfide precipitation. It is a simple two-step method for copper recovery. The first step is to extract over 90% of copper selectively from the black mass leachate, transforming it into high-quality copper cathodes suitable for foil production. The balance of the copper is then completely removed in the selective emew process to produce battery grade salts in the downstream steps.



Selectivity

High purity foil grade Cu cathode recovered directly from the high Ni leachate.



Simple and low-cost Cu removal with emew

A solution offered by emew is a simple and sustainable method for Cu removal and cathode production from Li-ion batteries black mass leachate.

		emew EW	Conventional EW
Operational	Process Simplicity	Simple integration with the leaching circuit, flexible operation	Complex integration with multistep process
	Power consumption	Lower consumption at lower concentrations	Significantly higher consumption at lower concentrations
	Maintenance	USD 150-200/ ton of cathode	USD 400 to 800/ton of cathode
	Cathode Stripping	Quick stripping without additional capex/opex or footprint	Additional capex and space to automate the stripping process
	Footprint	Smaller footprint	Bigger footprint because of SX and auto-stripping
	Leaching efficient (if multi-pass is possible)	Lower acid consumption and faster leaching rate	Higher acid consumption and slower leaching rate
Financial	Revenue	Higher premium - consistent and better quality Lower working capital - low circulating load Higher recovery %	Lower product quality without SX Higher working capital – high circulating load Lower recovery %
	Capex	Similar capex without SX	Additional capex of SX for comparable product quality
ESG	Safety	No Acid mist - closed cell assembly No SX reagents No lead anodes	High acid mist - requires ventilation hood SX reagents pose fire safety risk Disposal of spent lead anodes
	Circular Economy	Direct production of foil grade copper	No foil grade copper