emew clean technologies

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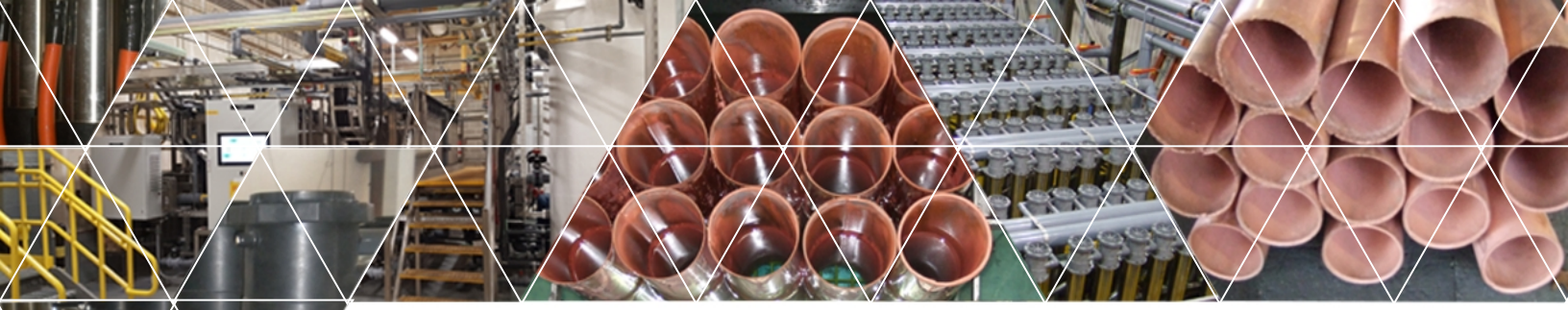
Providing leading edge clean technology solutions for environmental stewardship, metal recovery, energy efficiency and waste water treatment.

COPPER RECOVERY FROM SX-EW BLEED

Advanced emew cells enhance performance and copper recovery of SX-EW plants for heap leach operations.

Some of the key benefits of using emew for copper recovery from an SX-EW bleed include:

- Increased copper cathode production
- Decreased recycling copper load
- Reduction of fresh acid requirements
- Improved first pass copper recovery (< 1 g/L Cu)
- Production capacity increased by 5-10%
- Continuous and easy control of copper concentration
- Production of high purity (>99.99%) copper cathode
- Improved health and safety performance
- Small and compact footprint
- Modular, easy to add on to existing plant

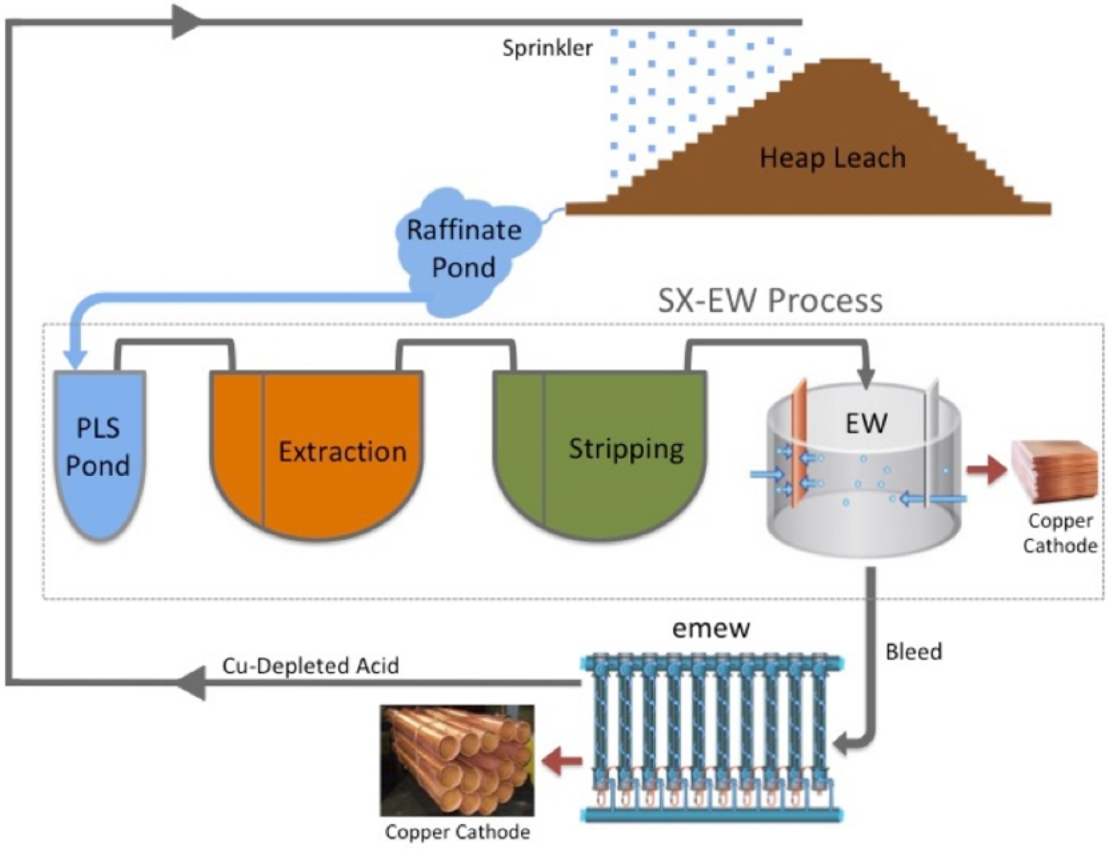


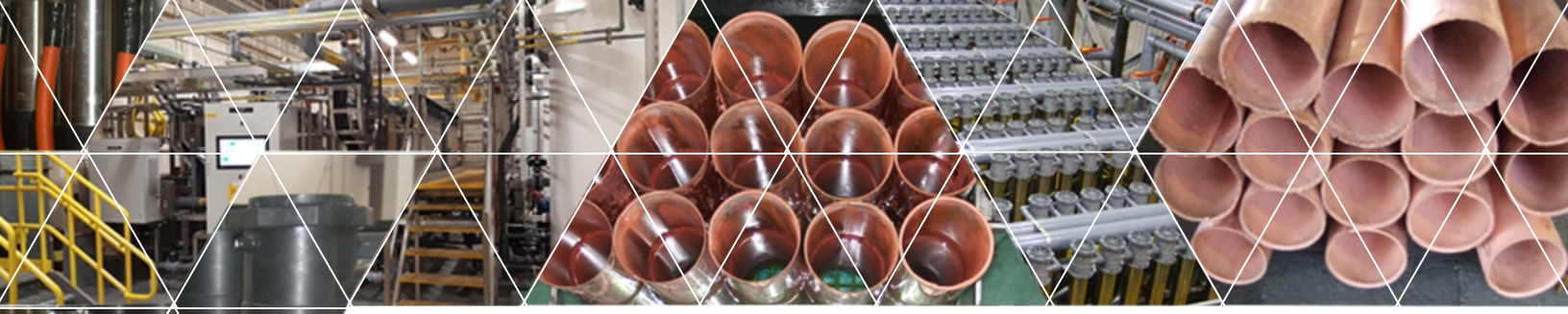
Process Benefits:

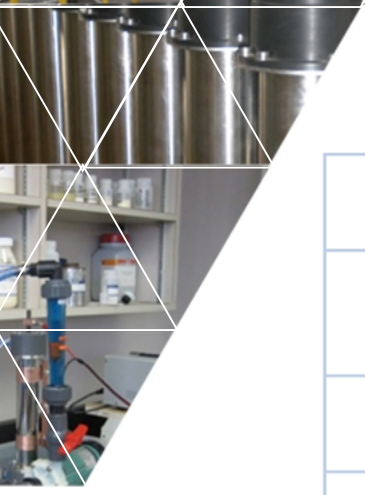
SX-EW plants bleed a portion of the EW electrolyte to control impurities and maintain cathode quality. The bleed solutions are typically fed back to the raffinate pond, PLS pond, SX-extraction stage, or the SX-wash stage.

By using emew to recover copper from the bleed, the copper concentration in the solution is decreased, increasing the leaching capacity of the recovered acid.

Decreasing the circulating copper load in the EW bleed of an SX-EW process decreases the fresh acid requirements and increases the plant capacity, leading to a more profitable and efficient process.







SX-EW with emew vs SX-EW:

Criteria	SX-EW with emew	SX-EW
Technology	Solvent extraction, conventional electrowinning, and/or emew	Solvent extraction, conventional electrowinning
Products	LME Grade Copper Cathode, Spent Electrolyte ~ 1 g/L [Cu]	LME Grade Copper Cathode, Spent Electrolyte > 30 g/L [Cu]
Current Efficiency	90-95% current efficiency in emew cells	> 90%
Power Consumption	2.5-3 kWh/kg Cu	2-2.5 kWh/kg Cu
Acid Requirements	Fresh acid requirements reduced	Increased extractant in E1, increased acid in SX-Wash
Safety	Closed cell design, no acid mist with emew	Open cell design, acid mist
Waste Generation	Closed loop	Spent electrolyte > 30 g/L [Cu]
Copper Recycle Load	Lower recycle due to improved first pass copper recovery (< 1 g/L Cu)	High: >30 g/L [Cu] in spent electrolyte
Environmental	Closed loop, acid is recycled, reduced effluent load	Partial acid recycling, excess [Cu], increased effluent load
Expansion Capacity	Increase production capacity by 5-10%	N/A
Process Versatility	High	Low
Copper Product Quality	High	High, but only from primary EW not from bleed
[Cu] Required for 99.9% Cu Product Purity	> 1 g/L	> 30 g/L
Operating Cost	Acid is regenerated and returned to heap, additional copper is recovered, low maintenance and labour	High recirculating copper load, fresh acid addition, ventilation requirements, labour, maintenance