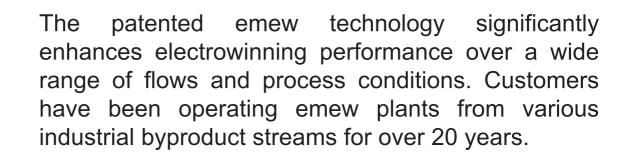


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## NICKEL RECOVERY SIMPLIFIED

Nickel electrowinning is dramatically simplified with the emew nickel process. This novel process coupled with high-flow emew cell delivers high purity nickel cathode from a variety of feed sources.



The fully enclosed design of the emew cell completely eliminates acid and nickel mist making for a safer and healthier workplace.







Nickel can be recovered as high purity cathode from many waste and by-product streams including:

- Wastewater treatment sludges
- Nitric acid nickel strip solutions
- Nickel-copper sulfate pickle solutions
- Low-grade nickel streams
- Nickel sulphate in black acid refinery bleed
- Nickel carbonate or nickel hydroxide
- Spent watts solutions
- Nickel chloride plating solutions
- Other nickel waste byproducts

The combination of lon Exchange (IX) and emew electrowinning technology allows nickel to be removed selectively from most solutions/sludges and electrowon as high purity nickel cathode for commercial sale or recycling without the need for additional refining.

The emew+IX and emew+SX packages are customized to suit the stream composition and volume for a given application.



**Process Benefits:** 

A simple solution to recover nickel cathode without the need for complicated membranes to separate the anolyte and catholyte.

- No sludges generated
- Full value for nickel cathode which can be sold with no further processing
- No transport or disposal costs for low-grade sludges or waste solutions
- Separation of nickel, copper (and other materials) into pure products for sale
- Large solution volumes can be handled
- Zero discharge/full recycle options
- Modular design to suite volume and metals content
- Copper and nickel recovered to <5 ppm</li>

## Schematic of Nickel Recovery from Wastewater using emew + IX

