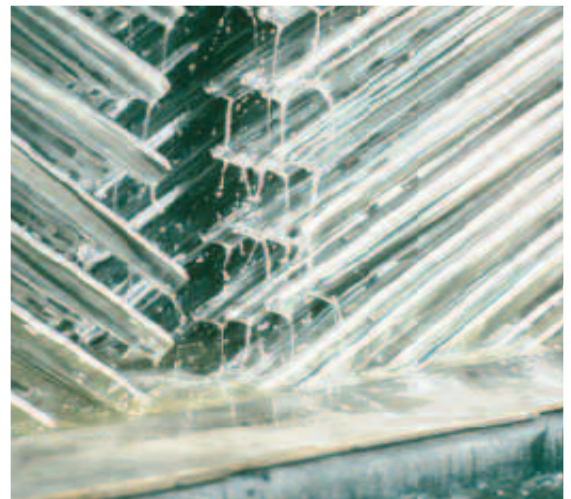
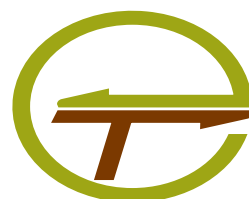


NickelPur™



Nickel Recovery System
Ensuring significant cost savings
While maintaining plating performance



eco-tec

**Advanced Resource Recovery
& Purification Solutions**

To ensure effective nickel recovery without affecting plating quality, several factors must be considered, such as; pH, brightener levels, sulfate/chloride ratio, sodium contamination and concentration of the recovered nickel. The Eco-Tec system is designed ensuring that these factors are taken into consideration.

What is NickelPur™?

Eco-Tec's nickel recovery unit utilizes the next generation of ion exchange with compressed-bed, counter-current technology. With the philosophy of a simple package and proven reliability, NickelPur™ recovers over 95% of nickel dragged out from the plating baths into the rinses.

The NickelPur™ Unit:

- Does not recover brighteners from rinses, allowing nickel salts to be recycled back to semi-bright tanks
- Ensures a properly pH generated nickel salt that can be directly recycled
- Rejects sodium from rinse water to prevent build-up in the plating tank
- Recovers nickel salt in the correct sulfate/chloride ratio

Why use NickelPur™?

“Nickel salt drag-out” is a normal operational occurrence during the electroplating process that results in nickel loss and sludge generation. Operational costs related to both the replenishment of the nickel, and sludge waste disposal can seriously impact an operations efficiency. NickelPur™ is specifically designed and manufactured to assist companies in their efforts to increase efficiencies, and lower waste and operating costs.

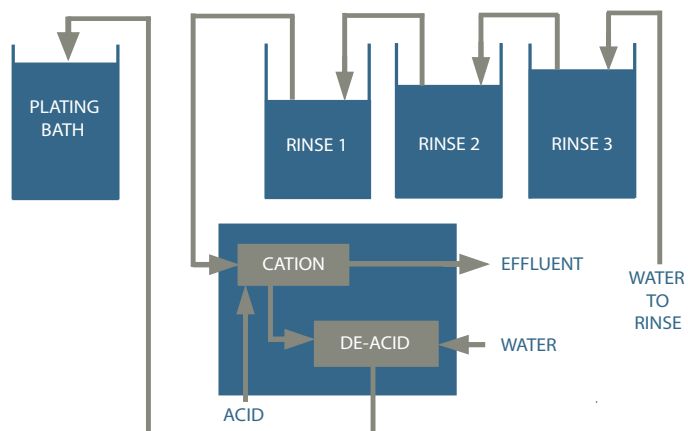
How Does NickelPur™ Work?

The combination of ion exchange resin and acid sorption resin ensure the effective recovery of nickel in electroplating operations.

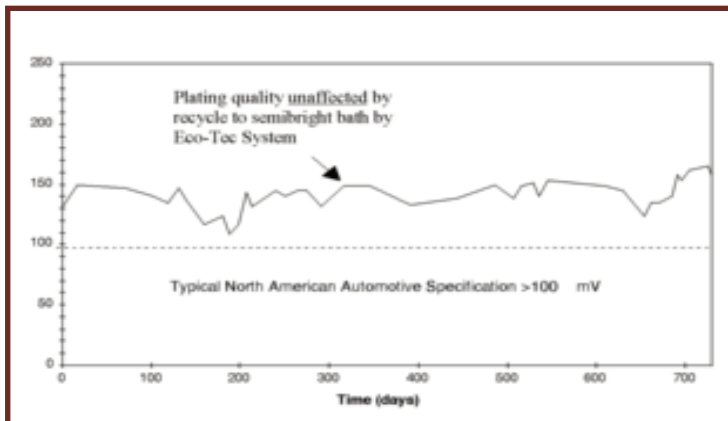
The cation exchange and acid sorption beds are coupled in a manner that produces a concentrated de-acidified nickel salt product. Rinse water is pumped through cartridge filters and then through the strong acid cation resin bed where the nickel is exchanged on the resin. Regeneration is accomplished using a mixture of sulfuric and hydrochloric acids, which are pumped into the cation resin bed. Regeneration yields a concentrated nickel sulfate and nickel chloride product, which then passes through the de-acidification bed to remove excess acids.

The resulting concentrated, purified, pH adjusted, nickel chloride/nickel sulfate product is stored and added to the plating baths as required.

NickelPur™ Process Flow



Quality



S.T.E.P. test results indicate the Eco-Tec System conforms to this widely accepted quality assurance rating.

Sizing a NickelPur™

It is simple to select the right NickelPur™ for your needs. Here are two methods:

Boric Acid (H₃BO₄) Calculation

Required Information:

Annual Boric Acid Purchases (kg/yr) _____

Hours of operation (hr/yr) _____

Calculation:

$$\text{H}_3\text{BO}_4 / \text{hr/yr} \times 1,875 = \text{___g/hr Ni}$$

Rinse Water Calculation

Required Information:

Rinse Water Flowrate (m³/hr) _____

Ni concentration in rinse water (g/l) _____

Calculation:

$$\text{m}^3/\text{hr} \times \text{g/l} \times 1,000 = \text{___g/hr Ni}$$

Notes:

- crosscheck with amount of nickel in sludge
- do this calculation for each line in operation
- use typical flowrates not maximum

NickelPur™ Capacity Chart

Model Number	Maximum Capacity (g/hr) based on Feed Concentration (g/L)		
	1 g/L	3 g/L	5 g/L
151-500	335	540	620
151-501	595	965	1,105
151-502	935	1,505	1,730
151-503	1,345	2,170	2,495
151-504	2,395	3,855	4,435
151-505	3,740	6,030	6,930
151-506	5,390	8,680	9,980

Full-scale Design & Manufacturing



Quality Design and Construction

- ISO 9001 registered design and manufacturing facility in Pickering, Ontario
- Built to global industrial standards
- Compact, skid mounted (including resin installation) and wet tested at Eco-Tec facility

Innovations

- Eco-Tec has been supplying Recoflo® ion exchange systems for industrial treatment and water purification applications since 1970 with more than 2,000 systems installed in over 60 countries
- Eco-Tec continues to develop product improvements and new processes at its in-house Research and Development facility

Technical Service and Support

- On-site commissioning supervision, performance demonstration, and operator training
- Performance monitoring and technical support program (Eco-SERV/Eco-TRAC™ / Eco-LINC™)
- 24/7 telephone access to technical services support
- Extensive spare parts inventory for next day shipment of most replacement parts



For more information, or to request a quick proposal, visit our website or contact:

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