Nickel in Finishing Baths Via Photometric Titration

Description

Method for the determination of nickel in plating baths via photometric titration. The results are expressed in **g/L nickel**.

Meter

Automatic Potentiometric Titrator - <u>HI932</u>

Electrode

• 470nm Blue Photometric Electrode - <u>HI9000604</u>

Reagents

- 0.1M EDTA
- 28% Ammonium Hydroxide
- Murexide Indicator, 0.2% (w/w) in Sodium Chloride
- Deionized Water- <u>HI70436</u>

Accessories

- Analytical Balance
- ¼ Teaspoon
- 150 mL Glass Beakers
- 1 mL Eppendorf Pipette Tips
- 1 mL Adjustable Eppendorf Pipette
- 10 mL Class A Graduated Cylinder
- Glass Stir Rod

Device Preparation

- Install a 25 mL burette filled with 0.02 1 M EDTA on pump one.
- Prime the burette pump with the titrant three times. To do so, press "Burette" then "Prime Burette".

Sample Preparation

- Connect the photometric electrode and temperature probe to Analog Board 1 on the titrator.
- Press "Select Method" from the main screen. Use the arrow keys to highlight the 'Photometric Nickel' method and press "Select".
- Install a 25-mL burette with 0.1M EDTA on pump one and verify that no air bubbles are present in the burette or tubing. If necessary, prime the burette until all the air has been removed completely.

Electrode Preparation

• Rinse the electrode with deionized water.

Sample Preparation

- Using the Eppendorf pipette, transfer a1 mL aliquot of your sample to a 150 mL glass beaker.
- Pour approximately 100 mL of deionized water into the beaker.
- Using the graduated cylinder, transfer 10 mL of 28% ammonium hydroxide to the 150 mL beaker.*
- ***NOTE**: The sample will undergo a color change from green to a purple/blue.
- Measure out a ¼ teaspoon (~1.5g) of murexide indicator.
- Transfer the indicator to the 150 mL beaker.
- Using the glass stir rod, mix the contents of the beaker until the indicator dissolves.

Analysis

• Place the beaker under the stirrer assembly and lower it to immerse the photometric electrode, temperature probe and stirrer.

NOTE: The dispensing tip should be in contact with the surface of the sample (slightly submerged).

- Press "Start". The titrator will automatically titrate.
- The sample will change from a dark amber color to bright purple.
- At the end of the titration, when the equivalence point is reached, 'titration complete' will appear with g/L Nickel.
- The results are expressed in g/L Nickel.
- Remove the photometric electrode, temperature probe, and stirrer from the sample and rinse them thoroughly with deionized water.
- Record the result.