

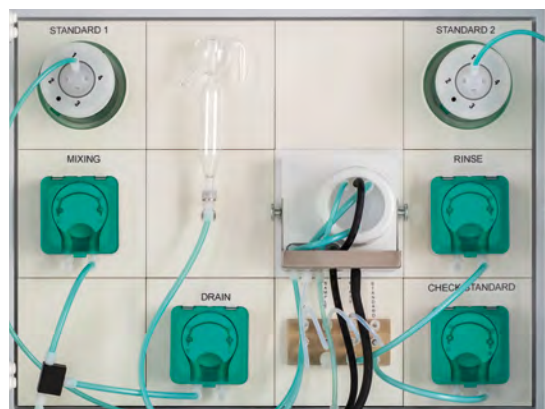


Efficient Bath Quality Control with XRF

Online analysis of zinc and nickel for process control

Precise chemical analysis guarantees the quality of the zinc-nickel alloy process in the surface-finishing industry. Traditionally carried-out in laboratory facilities, these analyses demand significant time and financial investment in essential chemicals and consumables. This is a challenge for electroplating processes, where accurate chemical dosage into the treatment baths requires real-time data for rapid closed loop control.

To address these issues, Metrohm has developed the 2060 XRF Process Analyzer. This analyzer can simultaneously check the concentrations of several chemical baths used in surface finishing efficiently and reliably.

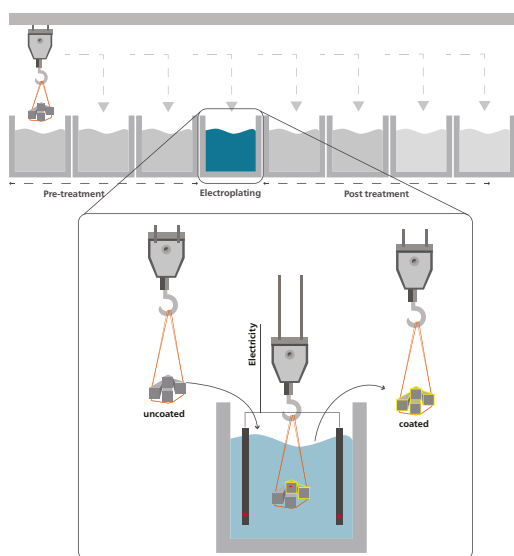


 **Metrohm**
Process Analytics

MAXIMIZE EFFICIENCY, MINIMIZE WASTE, AND ENSURE QUALITY FOR A CONSISTENT ELECTROPLATING PROCESS

Electroplating serves as a versatile solution, not only altering the physical properties of a given workpiece (substrate) but also serving as a key method for corrosion prevention. It utilizes electricity to deposit a thin layer of one material onto another. This process protects different materials, like copper and steel by adding a coating that is less susceptible to corrosion in the relevant conditions. In corrosion prevention, the zinc/nickel alloy emerges as an excellent choice in many industries, offering enhanced durability and longevity compared to individual zinc for example.

Within electroplating, alkaline and acidic zinc/nickel baths can be implemented. These baths can stabilize the protective attributes of zinc/nickel alloys, providing superior durability and longevity when compared to standalone zinc coatings, for instance. These techniques involve the controlled deposition of zinc and nickel onto surfaces, ensuring a uniform and robust coating.



WHY ONLINE MONITORING

- Guarantee consistent coating thickness
- Early detection of deviations – avoid reprocessing
- Enhances quality control – more accurate understanding of real process conditions
- Ensures the production of high-quality final products via a quick response to variations in baths conditions
- Safer working environment for employees – no exposure of operator to dangerous chemicals

Metrohm Process Analytics offers a turnkey solution for the monitoring of baths during the coating of parts. **The 2060 XRF Process Analyzer** stands out as a versatile solution, seamlessly accommodating both alkaline and acidic zinc/nickel electroplating baths.



BENEFITS FOR 2060 XRF PROCESS ANALYZER

- **Multiple analysis techniques** in one platform (XRF with titration, photometry)
- Versatility to accommodate **multiple and diverse process streams** and conditions (20 sampling points)
- Multiple analysis of a **broad spectrum of chemical elements**, spanning from magnesium to uranium (z=12 to 92)
- Outstanding precision and accuracy even at **low detection limits** (from mg/L to weight percent (wt%) concentrations)
- **Rapid response**, durability, minimal upkeep, non-destructive and **reagent-less** operation