



Optimizing Barrel Plating: Hubbard-Hall's Electrolyte Performance and Reducing Costs

The Challenge

Manufacturers are challenged by the need to meet a balance of performance, efficiency, and cost. High current density plating processes are often used to achieve better zinc distribution, higher throughput, lower costs, and improved wastewater treatment. This leads to high current density concerns, such as chipping and flaking. Specific challenges include:

High Current Density Concerns:

- Poor zinc distribution at high current densities, causing uneven plating.
- Adhesion problems at high current densities, like the head of a nail, leading to edge, end, and tip chipping and flaking.

Additives and Quality Issues:

- Excessive additive in the electrolyte can cause quality and stability issues.
- Over time, high current density can cause additive depletion.

The Approach

Hubbard-Hall's technical team investigated the electrolyte composition and process parameters. The focus was on optimizing the acid chloride composition to improve zinc distribution and reduce costs. Key findings included the use of Acid Chloride Concentrate. Achieving a balanced 2:1 zinc distribution

Executive Summary

Hubbard-Hall optimized barrel plating processes through acid chloride composition testing, achieving better zinc distribution, higher throughput, lower costs, and improved wastewater treatment.

Balanced 2:1 zinc distribution between high and low current density areas, reducing chipping and flaking

50% reduction in processing time, increasing throughput

be ee high a dl c e de i a ea ,c a able alkali e
i c. A de i g he acid chl ide f lai e a e e cie l
e e a high e e a e i h c i i g e e cie cie .

The Outcome

The i i ed a ach, ielded i e e e l ,de a i g
ig i ca i e e i b h d ci e cie c a d c
a i g .

Improved Zinc Distribution:

Bala ced 2:1 i c di i b i be ee high a dl c e de i
a ea ,leadi g e ha ced ali a d ed ced ch i g.

Increased Throughput:

Te i g i h c e d ci a h ed a e a kable 50%
ed ci i ce i g i e.

Cost Savings:

The e che i ed a i a el 80% le d c a d
ai e a ce che i . Sig i ca ed ci i che ical c a d
ai e a ce e i e e .

Enhanced Wastewater Treatment:

The a e a e ea e e be e ed f fe e b d c
eedi g ea e ,f he ed ci g e a i al c .

E al a i g c g e be d he ice e gall f a a ic la
che i . Fac like e jec a e ,de i ed h gh ,a d ea /
d ea ce e la a c cial le. H bba d-Hall' echl h, lik cie k
hig Od ci T d ca e O he Oe a l he O he Oe d c

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