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Colloy A-Z-N 300 Addresses Common Plating Problem

Columbia Chemical replaces ammonium chloride/high salt content in older zinc-nickel systems.

BY ANGELA OSBORNE MANAGING EDITOR

Columbia Chemical added Colloy A-Z-N 300, a new acid zinc-nickel plating process, to meet an increasing demand in the automotive market. This next-generation process provides a level, bright, ductile electrodeposited zinc-nickel alloy coating containing 12-15% nickel that is evenly distributed at low, mid and high current densities.

The process is designed to address common plating problems that can occur with the use of ammonium chloride/high salt content in older zinc-nickel electroplating systems. "We felt the industry needed an improved process for dealing with a lot of the maintenance issues that can occur with higher salt systems," says Matt Schario, Columbia Chemical's director of technical service.

The process also operates free from boric acid and ammonium salts, which is important as regulations for these types of chemicals often ban them in certain municipalities and countries.

According to Schario, many plating shops have issues with ammonium chloride/high salt content, which is a common problem with older systems, resulting in harder to control parameters. The higher salt solutions can clog air lines, filters, anodes, heat exchangers and cooling lines. This means that the bath often needs to be decanted or pumped out and cleaned to remove the precipitate, which results in costly maintenance downtime.

Colloy A-Z-N 300 is a simple four-additive system that operates at lower, more economical temperatures compared to high salt systems which need higher temperatures to hold all of the salts in solution. "This new process is lower in total chlorides, offers a large operating window in the temperature range and

eliminates the common problem of the bath salting out if it cools down," Schario says.

The process is also said to provide a bright appearance across a wide array of current densities. "We feel the system is generally easier to operate at a wider array of current densities and part types, which gives the plater more flexibility," Schario says. "(Platers) can run an array of current densities and still get a good part. The alloy distribution is greatly improved, which increases throughput and passivate reception."

The process is commonly used on stampings and fasteners for barrel applications and brake components in rack applications. Acid zinc nickel is a preferred method for plating over castings as it provides superior activation compared to alkaline zinc nickel.

Part of Columbia Chemical's product development process includes comprehensive testing, both internally and in production test sites, before release to ensure products are ready for market. It started testing this product at two sites running smaller scale production before testing in six full-scale production sites.

Improving efficiency and throughput were key product goals. According to the company, after three months of testing of Colloy A-Z-N 300, the original field test installation in a high-production automotive plating facility reported no downtime and nearly double the throughput.

"This product tested well and worked right out of the box," Schario says. "It's easy to implement and maintain, and user friendly."

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