



Anoplate Makes Significant Upgrade with Electroless Nickel Line Expansion

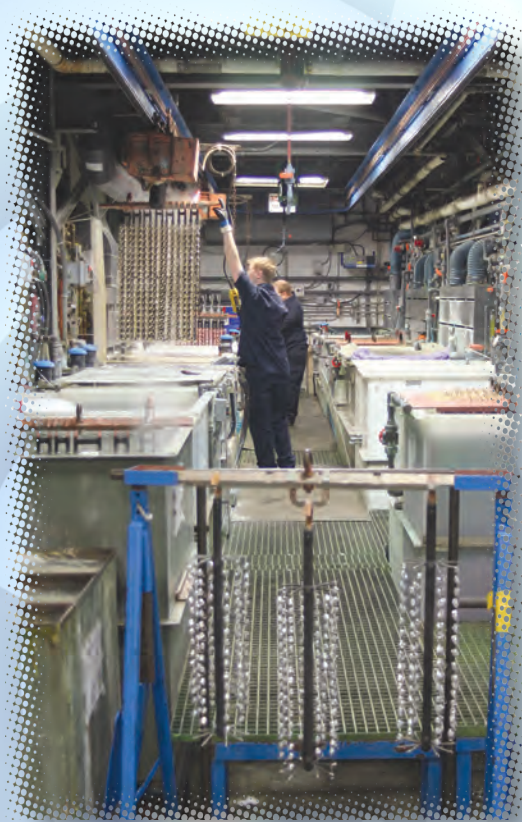
Anoplate continued to make significant capital upgrades to its facility in 2012, including an expansion of its electroless nickel (EN) capabilities.

In addition to its hand EN line, Anoplate has a linear, manually-operated hoist line utilizing the latest chemical technology to produce high-phosphorus grade EN deposits on steel and copper substrates. Featuring adjustable-speed hoists and advanced chemical handling and safety designs, the new production area allows Anoplate to refine EN productivity and process management. The upgraded EN line - installed in early 2012 and now fully operational - offers a host of key improvements:

- **Efficient, expandable EN production.**

The area is designed with wide, level, open-grid catwalks and stairways for improved traffic flow and tank access. The one-ton hoist/rail system has increased EN production capacity by

30 to 50 percent and broadened the range of sizes and weights that Anoplate can handle.



- **Improved worker safety.** Point-of-use exhaust (rather than general room exhaust) is installed at key tanks. Chemical and solution transfers are accomplished through valved manifolds, which automates these transfer functions and minimizes manual contact with plating solutions - and also minimizes the likelihood of spills, either large or small.

- **Advanced environmental protections.** Chemical spill controls include a fully bermed,

pitched floor/ sump system with a chemical-resistant coating. Nickel-bearing waste water is segregated for special pretreatment that optimizes metal precipitation and thus enhances recovery. Oil removal, filtration, and agitation pumps have not only enhanced the performance of EN solutions but prolonged their useful life as well, reducing the volume of waste nickel products.



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Surface Engineering from
Anoplate Corporation

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WORLD-CLASS
SURFACE ENGINEERING

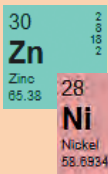
Spring 2013

Q&A

Q. With Airbus declaring that their new A350 will be totally cadmium-free, a lot of attention is turning to zinc-nickel plating. What does zinc-nickel have to offer and is Anoplate considering putting it in? (Aerospace Materials & Process Engineer – South Bend, IN)

A. Zinc-nickel plating has been attracting a lot of attention — particularly in Europe — but primarily in the automotive finishing sector as zinc deposits containing nickel from 5% to 15% exhibit superior corrosion resistance compared to straight zinc. Not surprisingly, co-depositing nickel in zinc increases the hardness of the deposit which makes the coating tougher and more wear resistant. That said, the Boeing Corporation has had interest in zinc nickel as a cadmium replacement as evidenced by US patent # 4765871 issued in 1988 which specifically covered an acid formulation that resulted in low hydrogen embrittlement potential. BAC 5637 covers such deposits. While some aerospace companies are specifying zinc-nickel to ASM 2417 and/or ASTM B841 on their drawings, others, like helicopter OEMs and landing gear manufacturers have conducted their own investigations and issued their own corporate specifications.

To give the reader an indication of
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in the automotive finishing sector as zinc deposits containing nickel from 5% to 15%

Customer Satisfaction Survey

This past fall, Anoplate polled its top 255 customers to see how we have been performing to meet their expectations along the lines of quality, delivery, communication and competitiveness just to name a few. Of the 255 customers, 55% of them responded to the survey request, which was a company-best response rate (most satisfaction surveys are in the 15-20% range). We truly thank you for the candid and overwhelming feedback we received through this survey, both good and constructive. We then benchmarked ourselves against the last customer satisfaction survey released in 2004. Based on the feedback received, Anoplate has improved remarkably in the following areas since 2004:

- Overall Quality
- On-Time Delivery
- Availability of Anoplate personnel
- Technical Ability of Anoplate personnel to meet your coating requirements
- Standing behind our coatings and quality

Our overall customer satisfaction has increased from 3.50 in 2004 to 3.66 in 2013 on a 5-point Likert scale (5 being best).

For those that were asked to participate in the survey, we want to thank you for the time you took to complete the survey and give us your honest feedback. We are proud of the improvements we have made to improve product quality, on-time delivery, and technical service over the years and we will continue that journey.



Fast Facts – ISO Approval

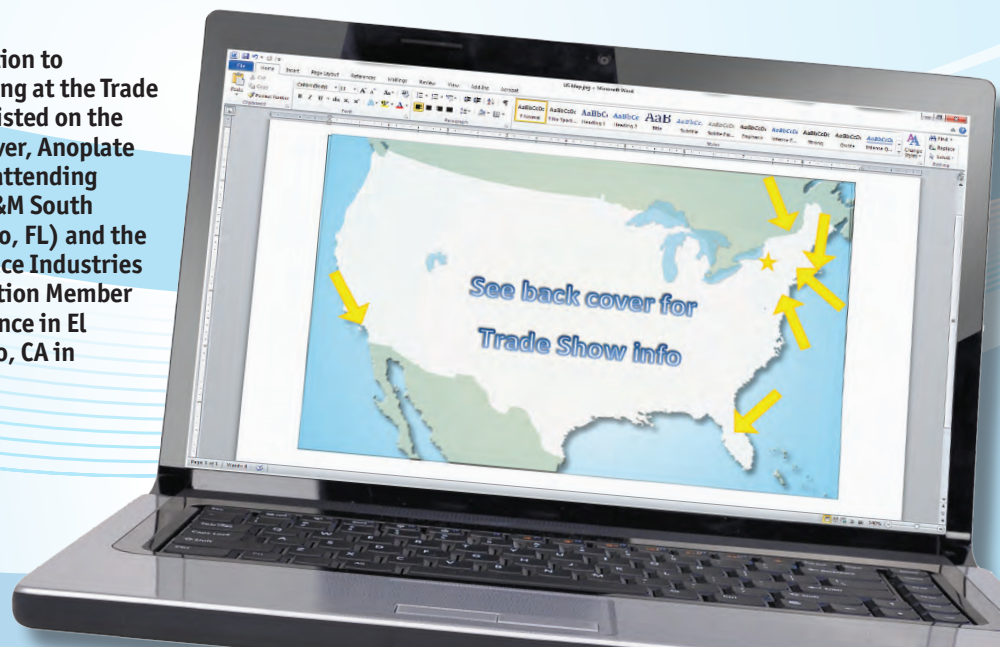
In early November, Anoplate passed our latest Surveillance Audit of our ISO 9001 Quality Management System and our ISO 14001 Environmental Management System. Several opportunities for improvement were suggested and we were commended for the progress made to our “On-Time to Customer Promise” initiative.

ISO 9001
BUREAU VERITAS
Certification



Our auditor quoted: “Anoplate has a strong system and should be proud of it.® The system documentation is good; impressive in some cases.”

In addition to exhibiting at the Trade Shows listed on the back cover, Anoplate will be attending the MD&M South (Orlando, FL) and the Aerospace Industries Association Member Conference in El Segundo, CA in March.



"The line represents a significant investment in our ability to quickly and economically turn our customer's parts", says Sean Novak, one of Anoplate's applications engineers.

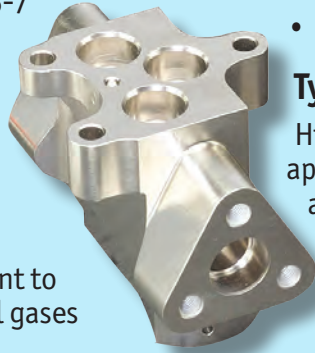
The trend over the past 5-7 years has been for more high-phosphorus grade EN to be specified by Anoplate's customers. High-phosphorus electroless nickel has many properties. High-phosphorus EN is resistant to many common industrial gases and liquids, including:

- Formaldehydes
- Beer
- Acetone
- Sodium Hydroxide
- Petroleum products
- Milk

High-phosphorus EN can be applied to a wide variety of materials, including steel, stainless steel, Inconel, Monel, Invar, Kovar, aluminum, brass & copper.

Benefits

- Uniform coverage, both internally and externally, including threads, grooves, sharp corners and other complex shapes
- Ability to hold close tolerances by preventing uneven build-up



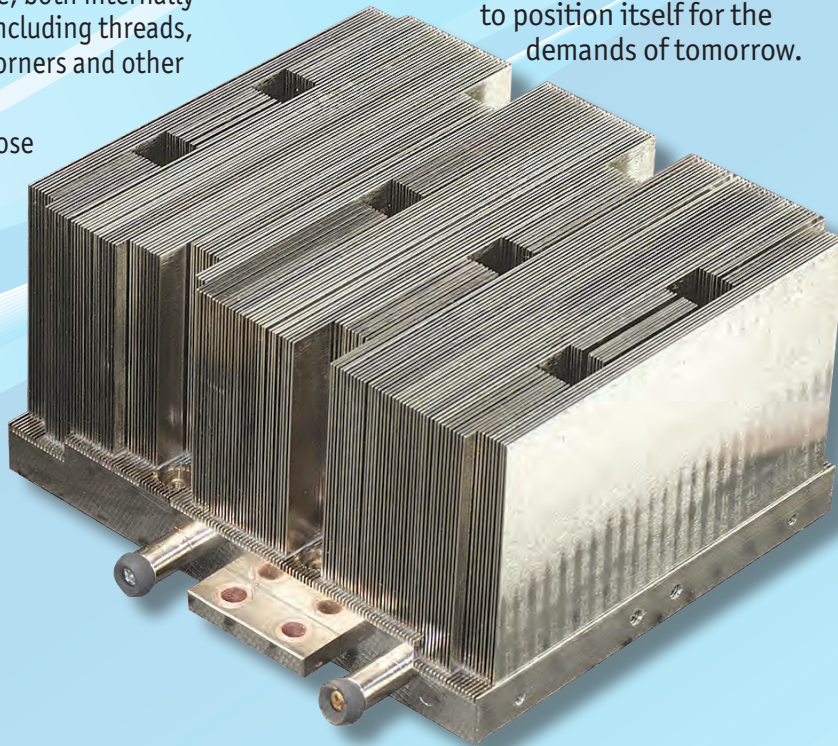
- Variable formulations geared toward specific engineering purposes
- Excellent corrosion protection
- Superb wear resistance
- Ductile Deposit is easily crimpable
 - Good electrical conductivity

Typical Applications

High-phosphorus EN should be applied where maximum wear life and corrosion resistance are required. High-phosphorus EN is an excellent solution for the following applications:

- Engraving and printing rollers
- Food-handling equipment
- Injection molds
- Hydraulic cylinders
- Medical diagnostic equipment
- Telecommunications connectors

With near-equivalent hardness and exceptional corrosion resistance to mid-phosphorus EN, the number of orders specifying high-phosphorus EN soared, putting strain on Anoplate's ability to meet customer demand. With this latest addition to its metal finishing capabilities, Anoplate continues to position itself for the demands of tomorrow.



Q&A continued from page 2

how superior zinc-nickel plating is corrosion wise, whereas most cadmium or zinc plating specifications require 96 hours of minimum salt spray resistance to red rust, typical aerospace specifications for zinc-nickel require 500 hours to red rust. In researching the legitimacy of this claim, we spoke to one nearby automotive plating house who said that their zinc-nickel with a hexavalent clear chromate routinely exceeds 1,000 hours of salt spray.

Given the performance benefit of this coating and the fact that more and more firms are specifying it, Anoplate is in the early stages of discussions with potential suppliers of zinc-nickel processing chemistry. As an alloy deposit, there are many factors to consider. Not only are there acid and alkaline formulations, some applications favor low nickel contents of 5-8% where other OEM's dictate the upper end of 12-15%. Compounding the matter, as with any plating process, some parts dictate barrel processing whereas others require rack plating and finding one formulation to accommodate both is foolhardy. Over the next couple of months we expect to have a small experimental bath installed and by our next Nadcap audit in we intend to be in a position to add zinc-nickel to our scope of accreditation.

If you have zinc-nickel plating needs or questions, please feel free to contact anybody in our Sales &

The Faces of Production Management at Anoplate

With well over 100 years of experience in manufacturing and plating, our Production Management staff is instrumental in helping Anoplate satisfy our customers' quality, delivery, and cost requirements using Lean Six Sigma tools and concepts.

They are responsible for enabling the skills of our platers and plating assistants to occur within the technical boundaries of our capabilities, customers' requirements and manufacturing space.

Our plant leaders coordinate the different "behind the scenes" aspects of the masking, plating, in-process inspection and packing processes. On some occasions the requirements may be more complex, such as jobs requiring multiple masking operations to support more than one finish crossing departmental lines.

In addition to monitoring their respective departments, our production professionals have specialists and engineers working with them. It is Production Managements' job to ensure the disparate disciplines come together to complete the plating process on time, on budget and aligned to the customers' requirements.

Here's Anoplate's Production Management team members:

Jack McCarthy, SBU 1 Manager and his Flow Leader **Mike Finnigan** manage the following finishes: Chem Film, Chromic Anodize, Sulfuric Anodize, Hard Coat Anodize, Titanium Anodize and Dry Film Lube.

Eric Peckham, SBU 2 Manager and his Flow Leader **Alex Patton** manages the following finishes: Vacuum Impregnation, Electroless Nickel, Low Phos, Mid Phos, High Phos, Black Nickel and Tin.

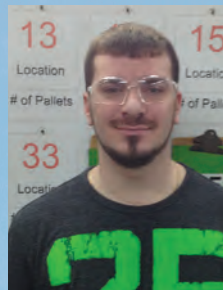
Paul Phillips, SBU 3 Manager and his Flow Leader **Melina Hemingway** manage the following finishes: CAD, Zinc, Silver, Gold, Rhodium, Chrome, Black Chrome, Hard Chrome, Decorative Nickel and the Barrel line.

Rich Stetes, SBU 4 Manager manages the following finishes: Bright Dip, Electropolish, Zinc, Black oxide, Phosphate and Passivate.

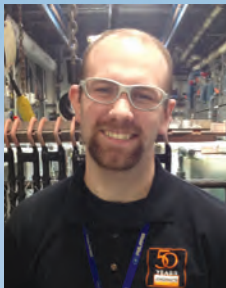
George McNamara, VP, Operations / Lean Six Sigma Master Black Belt. George brings to Anoplate three decades of Medical and Industrial manufacturing experience ranging from pacemaker components to thermal management systems.



Jack McCarthy



Mike Finnigan



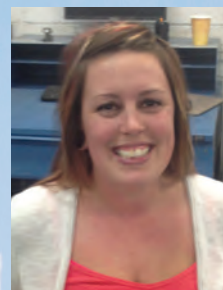
Eric Peckham



Alex Patton



Paul Phillips



Melina Hemingway



Rich Stetes



George McNamara

Upcoming Trade Shows:

BIOMEDevice

April 10-11, 2013
Boston Convention & Exhibition Center
Boston, MA
Booth: 331

EASTECH

Eastern States Exposition
May 14-16, 2013
Pennsylvania Convention Center
West Springfield, PA
Booth: 5520

MD&M East

Atlantic Design & Manufacturing
June 18-20, 2013
Pennsylvania Convention Center
Philadelphia, PA
Booth: 4521

SAE 2013

AeroTech Congress & Exhibition
September 24-26, 2013
Montreal, Quebec, Canada
Booth: Coming Soon

For more information, see:
www.anoplate.com/newsandevents



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