

Aligning With “Customers Needs Are Paramount”

Anoplate has been successful for nearly half a century by focusing on relationships with our customers and meeting their needs. Despite that success, we realize that our customers require much more than just meeting their basic needs. We understand that “Customer Needs Are Paramount” and everything we do within our Company must be aligned with that key value. We understand that our customers have more choices today and have more demanding requirements so that they can remain ahead of their competition. Anoplate is continuously improving to meet the new demands so that we remain our customers’ supplier of choice. This of course is a continuous journey, but we would like to update you on some exciting initiatives that we have been working on to put those important words into action.



Anoplate's new dedicated customer & guest entrance.

Systems Analysis & Applications from Elmira College. He held key leadership positions with NCR Corporation and Axiohm before joining Anoplate and has 20+ years of experience leading large teams through change initiatives to support substantial growth. His primary skills include talent selection & development, change management, project management, process management & analytical skills. The functions reporting to Mike include sales & service, quality planning & quality control, process control, and shipping & receiving.

New Engineering Talent to Serve You Better

We want to remain on the forefront with our breadth and quality of coating processes by advancing in our application of science for improving process control, root cause problem solving, and efficient

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New Position to Lead Alignment to Serve You Better

Since it is such a large and important undertaking to align everything that we do based on our customers’ needs, Anoplate created a new position on the Leadership Team, reporting directly to Jim Stevenson, President & COO. Since the focus of the new position is to improve the quality of all customer interactions as well as process & product quality, the position has been appropriately named VP, Customer & Process Quality (C&PQ). Mike Radford was selected for this key position because of his combination of skills and experience of “bringing it all together”. Mike has a B.S degree in



IT'S A SMALL WORLD

While Anoplate serves over 1200 customers a year, coming from 42 of the 50 states, it is also becoming clear that it has “world wide roots”. Anoplate currently serves companies from England to China and provides repair support to government bases through out the world. Some recent visitors to Anoplate include:

- 1) Marcus Stark and Ute Probst who own Stark Eloxxal, a second generation anodizing shop in Lottstetten, Germany.
- 2) Eric Schahl, Manufacturing Quality Engineer with Messier-Bugatti, an aerospace prime from Molsheim Cedex, France.
- 3) Charles Sci, Supply Chain Manager with Moog’s Shanghai manufacturing facility.

If your metal finishing requirements require International Standard (ISO) and/or National Aerospace and Defense Accreditation Program (Nadcap) knowledge, Anoplate engineers and support staff are trained to provide that expertise or obtain it for you.

Hard Anodizing--- Ahead of Its Time

This was the theme for the 11th International Hard Anodizing Symposium, held this fall in Baltimore, Maryland. Two chemical engineers from Anoplate attended the two day technical presentations. It was also an opportunity to renew networking relations with both domestic and foreign hard coaters, a vital fringe benefit of these international meetings.

We have selected several of these presentations to give a very short description of their content. Two papers deal with properties and conditions that are present on incoming work, which the finishers have no way (in most cases) of correction. Several papers were quite theoretical as far as practical use here at Anoplate, at least at the present time. One of these was on the electrodeposition of pure aluminum on steel and copper with the other on research developments of nanoporosity in anodized layers for high tech applications.

Aluminum Electroplating of Metals to Enable Hard Anodization and Other Applications by Gus Vallejo, AlumiPlate.

The electro-deposition of pure (99.99) aluminum is possible at one plant in the U.S. in a non-aqueous solution containing hot solvents. The maximum size of part that can be processed is 20" x 30" x 23" and components for the aerospace and semi-conductor industry are the current uses. Electroplated aluminum facilitates the use of non-traditional materials that have attractive properties for specific applications. This process gives you the opportunity to anodize any material, iron based super alloys, stainless steel, copper or even graphite.

The Use of Hard Anodizing to prepare Highly Ordered Nanoporosity in the Aluminum Anodic Layer by Dr. Laurent Arurault, Universite' Paul Sabatier, France.

The aim of this presentation is to present results of research advances concerning the nanostructure of the anodic aluminum oxide layer on aluminum substrates using the hard coat anodizing process. Industrially, films such as these have increased value in both aerospace and semi-conductor applications.

Anodic Coating Problems Due to Machining Defects by Hans Vollmer, Netherlands

Machining defects due to milling, grinding, honing, abrasive blasting and welding are many times aggravated by the aluminum oxide coating created by anodizing. Patterns in the base metal and different areas of surface roughness will have a different reflective value and may appear darker. Communication with the customer in these cases is vital to create a long lasting economical solution.

Challenges in Anodic Oxide Finishing Arising from Different Substrate Manufacturing Processes by Dr. Jude Runge, CompCote, Illinois

By being aware of the impact of various micro-structures; cast, wrought and sintered, on the anodizing process, the anodizer can actively participate in root cause failure analysis. Many times what

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Customers Needs...

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product flow. We invested heavily in engineering talent in 2006 by adding four talented engineers to our staff; two Chemical Process Engineers (Sean Novak & Dino Aimino), one Quality Engineer (Christine Nesbitt) & one Industrial Engineer (Pavel Kobyakov). Our goal is to have consistent and repeatable chemical processes ready to use when your parts arrive.

Physical Changes to Serve You Better

We have recently completed a major capital improvement project in our main office area. We have upgraded to a modern office environment that is customer friendly, with a dedicated customer & guest entrance, customer conference room, and parking. We have physically integrated our sales and service personnel into this new area. These personnel were formerly located in separate buildings. Please stop by and we will be happy to give you a tour and show off our latest investment to serve you better. Look for the new lighted canopy that is easily visible from Pulaski Street that marks the new customer entrance.

Other Internal Changes to Serve You Better

We have expanded our hours of coverage in sales & service. Our friendly, competent customer service representatives are now available from 6:30 A.M. – 6:30 P.M. to serve you better. This also supports our growth outside the Eastern Time zone, including international.

We are implementing a redesigned Traveler to help improve our efficiency and accuracy of processing your parts. Our Traveler doubles as work instructions & router to process your parts. The redesigned Traveler provides a clearer, easy to read format, provides photos where needed, and provides good quality laser printing.

We have implemented the scanning of key documents for easy retrieval when needed by the customer. The documents that we scan include the Traveler and associated inspection and certification records, purchase orders, and invoices. When we receive a customer inquiry on a completed job, we can easily retrieve it on the computer rather than having to search through the files to find the hard copy documents.

We're excited about the progress we made in 2006 and how we have positioned Anoplate for further improvement in 2007 and beyond to align with one of our key values, "Customer Needs Are Paramount". We will update you throughout the year on our progress.

BLACK IS STILL OUR "KNACK"

In 1961, one year after Anoplate was founded, a small black chrome (AnoBLACK CR) set-up was installed. A new finish at the time, it has grown in its usage, but still only a limited number of shops have installations. With that as a focal point, other blackening processes were added. In the 70's, we coined the phrase "BLACK IS OUR KNACK" and featured that phrase on much of our advertising. In the mid 90's, black electrolytic coloring of anodized aluminum (AnoBLACK EC) was developed for non-fade applications in outer space and its ability to withstand new medical sterilization methods. Wouldn't you think that 46 years later Anoplate would have all the black processes a job shop would need? Not quite! The blackening of malleable and cast iron, run through the standard black oxide process, produces a maroon tinged black finish, not acceptable in many applications. There was an answer at the time, to process those alloys in another

bath, used for high alloy steels, which produced a black coating but with moderate smut. This produced a good black but not as hard and with a definite smudge problem. Depending on the porosity of the casting, entrapped solution sometimes bled out creating a "dry white salt" condition. These problems are almost eliminated with use of Anoplate's new AnoVa BLACK.



Black Oxide for inspection and packing



After several years of development and testing, Anoplate has installed a modified black oxide, which still meets the MIL specifications, produces the same metallurgical surface (iron oxide) and creates a more tenacious black on iron castings. The shine or luster can be modified by time differential in the pre-treatment, dulling down gun sight components for instance. This process has the name AnoVa BLACK and is being used in production on a two shift basis. To run samples or obtain information,

contact Mandy Christman (x-123) or Dave Edmonds (x-158). For technical matters contact Sean Novak (x-128), one of our chemical engineers on the project.

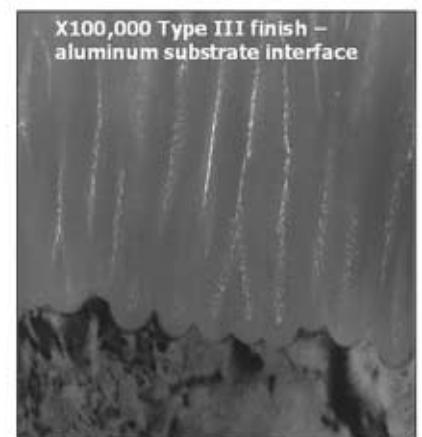
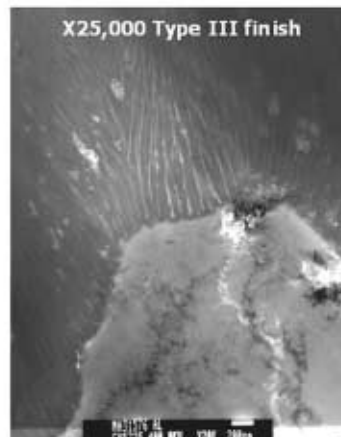
Hard Anodizing

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at first appears to be anodizing problems are actually substrate related. An example was given about rotors manufactured from a sintered alloy that had discontinuities and discoloration in the anodized finish. Examination and analysis disclosed that the components were highly segregated such that the bulk alloy chemistry that was specified as a maximum 14% silicon, exhibited concentrations as high as 27%.

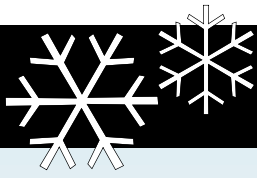
If interested in a list of all presentations made, contact Milt Stevenson Sr. at extension 156.

TEM - Type III Finish



Transition Electron Microscope (TEM) micrograph of Type III hardcoat anodize. (picture courtesy of Dr. Jude Runge, President, CompCote International, Inc.)

Q & A

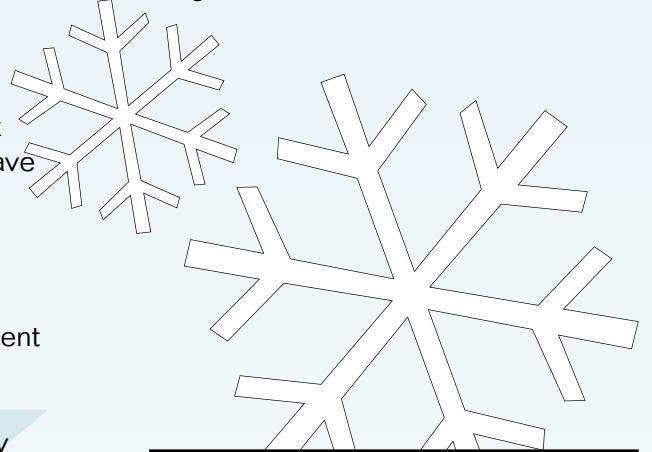


Q If tin-bismuth plating, that is Anoplate's AnoTin Bi, is one possible answer to the elimination of tin-lead solder plating, how can we be sure that the deposit meets requirements? (Customer: Cedar Rapids, Iowa)

A In order to ensure a consistent and repeatable bismuth content in the otherwise tin electrodeposit Anoplate uses two straight forward analytical procedures based on atomic absorption spectroscopy (AA). In the first, routine samples of the actual plating bath are analyzed using AA and the bismuth level maintained at a constant level. In the second, a sample of the tin-bismuth deposit is dissolved from a test coupon and by accurate weight measurements and dilutions, the resulting solution is analyzed for both tin and bismuth. As with any quantitative analysis, intense care must be taken in the preparation of the sample since very small quantities of either copper or MSA (methane sulfonic acid), a component of the plating bath chemistry, can cause significant error. Your best bet to be "sure" is to visit your metal finishing vendor and audit your plating source. We're well aware of plating houses that supply alleged tin-bismuth deposits which in reality are pure tin. Those platers may be acting in good faith by making routine bismuth additions, but without the in-house analytical controls available at Anoplate, there is inherent and unavoidable risks. AnoTin Bi is only one possible solution to overcoming whiskers – others are discussed at NASA's Lewis Research Center website (www.).

Q With all the fuss over RoHS zinc plating and elimination of hex chrome chromates (Cr+6), have you eliminated any? Will I have trouble getting my military parts processed which require that finish? (Customer: Rochester, NY)

A Anoplate has eliminated hexavalent chromium in favor of trivalent chromium chemistry where (1) specifications permit such substitutions and (2) where our internal testing has clearly demonstrated that doing so does not compromise the quality, namely corrosion resistance, of the finish. Years ago we converted our clear zinc chromate over to trivalent chromium chemistry (Cr+3) and the improved corrosion resistance was remarkable. Early in 2005, we began experimenting with yellow dyes added to this superior, otherwise clear, trivalent chrome process. Following months of experimentation and limited use, we later gained the confidence and experience necessary to replace our conventional yellow, hexavalent chrome based products. In regards to these zinc plating specifications, as long as the substituted products meets the performance requirements of the specification, there are no barriers to replacing the hex chrome. Our biggest hurdle to date has been finding a reasonable hex-free black zinc substitute. While some specifications such as IBM permit use of a molybdate black, these solutions produce a good looking black, but they provide limited corrosion protection. Similarly, the blacks used in the automotive plating sector rely on a black organic wax overlay which from an electrical resistance standpoint is undesirable. Lastly, please remember that there has been no RoHS substitute developed for olive drab chromate. That remains a Cr+6 (i.e. hex chrome) chemistry based finish, but luckily is specified mostly in government, non-RoHS applications. As one of the basic tenants of Anoplate's foundation, customer needs remain paramount and we'll do whatever it takes to provide our customers with 100% compliant finishing requirements.



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