



The Latest News on Surface Engineering from Anoplate Corporation

**In this Issue:**

**COVER**

*Anoplate is Flying High*

**PAGE 2**

*US Dept of Energy Recognizes Anoplate's Energy Savings*

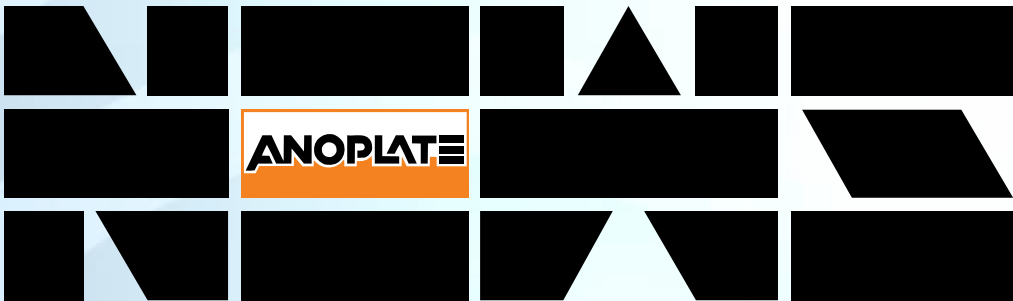
*Customer Login Portal Announcement*

**Page 3**

*Q&A*

**Page 4**

*Everything's Under Control*



# Flying High with an Environmentally-Friendly Alternative to Chromic Acid Anodize

Chromium, in certain forms, is on its way off of the proverbial production map, and with this comes the swan song of a staple of engineering-centric coatings such as hard chrome chromate conversion coatings and chromic acid anodize (CAA).

Chromic acid anodize, a.k.a. Type I per MIL-DTL-8625, has traditionally been used in the following applications:

- Airframe components due to its increased corrosion resistance
- Tight-tolerance aluminum parts requiring corrosion protection
- Aluminum components adhesively bonded to one another

These attributes have been ideal for aircraft coatings.

As its name denotes, chromic acid anodize is an aluminum oxide coating that is created in a chromic acid solution. EH&S and EU legislations (including RoHS, REACH and WEEE) have called for the ban of hexavalent chromium (a.k.a. chromates) not only in coatings but also in the manufacturing process. In response to this trend, in 1990 Boeing developed and patented Boric-



Sulfuric Acid Anodize (BSAA). Boeing initially licensed the patented process to qualified vendors; however, that patent has since expired.

The BSAA oxide coating exhibits many of the same properties as the aluminum oxide coating that is derived from the chromic acid process. The table below shows the similarities and differences between Boric-Sulfuric and Chromic Acid Anodize.

## Design Considerations with BSAA

In considering whether or not BSAA would be a functional alternative to the chromic acid anodize you've been specifying for years, there is very little to consider. If your parts require hardcoat anodize and chromic anodize on the same part, and your metal finisher has been using chromic acid anodize as a stop-off for the hardcoat, BSAA will not be for you. Also, because the electrolyte used for developing this coating contains sulfuric acid, there is a chance to entrap solution in welds, crimps, and seams, which can lead to corrosion and part degradation, so parts with these fea-

### BSAA vs. CAA

Similarities	BSAA Differences
Thickness & Buildup	Not suitable as hardcoat stop-off
Corrosion resistance	Inability to be dyed
Bondability	
Fatigue Debit	

*Continued on Page 3*



WORLD-CLASS SURFACE ENGINEERING

Spring 2011

# US Dept. of Energy Recognizes Anoplate's Energy Savings

The U.S. Department of Energy (DOE) Industrial Technologies Program (ITP) recently announced its Save Energy Now award winners for 2010; Anoplate was among those winners!

Some of the projects Anoplate undertook included:

- New air compressors with variable speed drives
- Volumetric flow control for compressed air lines
- Reduced shop air pressure by using point-source air pressure amplifiers
- Converted SCR to switch-mode rectifiers
- Eliminated chiller use through use of rinse-water cooling

DOE awarded 151 plants nationwide for making significant progress in implementing energy savings opportunities identified through a Save Energy Now energy assessment. In total, the award recipients achieved more than \$32 million in cost savings and 4 trillion BTU's in total energy savings. Save Energy Now is a national initiative to reduce industrial energy intensity by 25% or more in 10 years. Companies nationwide can partner with DOE, participate in no-cost energy assessments, and use ITP's proven resources to reduce energy use and improve efficiency, while reducing energy costs.

DOE's Save Energy Now award to Anoplate was in the Energy Saver category, which awards plants for achieving more than 75,000 million BTU total energy savings or more than 7.5% total energy savings. These projects and others reduced Anoplate's energy consumption by nearly 13%. Many thanks to all that have helped with our energy savings and achieving this Energy Saver award. It will be displayed in the main lobby so stop by and take a look at it!



## Customer Login Portal Announcement

**Extra! Extra! Read all About it!!**

In today's world, the average time from manufacture to delivery has become increasingly truncated and finished-goods inventory is an endangered species. Since demand dictates the pace of business, information is key to supply chain management.

Anoplate understands this and is happy to announce the launch of a new customer log-in portal which will allow current customers to log-in to a secure, web-based portal to view the status of their in-house orders.

"I have been using it not only daily but multiple times throughout the day for current job status. The info supplied is helpful...it's been a useful tool."  
- Happy Customer

Here's how to sign up:

1. Visit [www.Anoplate.com](http://www.Anoplate.com) and click on the Customer Login button
2. Email our Customer Service representatives at [CustServ@Anoplate.com](mailto:CustServ@Anoplate.com) asking to sign up today
3. Customer Service will email you back with a user-name and temporary password
4. Login in the first time and reset your password to what you like



## Anoplate is Flying High ...continued from Page 1

tures would not be good candidates for BSAA. Furthermore, while modifying electrolyte conditions for chromic anodize allows those anodic oxide films to be dyed (black, in particular), BSAA doesn't permit such a dyed opportunity.

While these design considerations have been investigated, there are many more attributes that one might specify CAA for and reasons why it has worked in your application. It is strongly suggested that you prototype the performance of this coating/part system in your application before bringing it to market.

One of the largest benefits of thin anodic films using in the aerospace industry – be it chromic anodize or boric-sulfuric – is their ability to provide corrosion protection without greatly diminishing the fatigue strength of the aluminum base material. It has been well demonstrated that with increasing oxide film thickness, the fatigue strength of aluminum can degrade by as much as 50% for the thickest, Type III, hardcoat anodize films. Type II sulfuric anodize coatings typically fall in the 25% fatigue reduction realm while the thin Type I films are generally around 5% or less.

### Prime Specifications

Aerospace primes such as Sikorsky have been permitting the switch to BSAA where Type I chromic anodize was specified for years without mandating it. This may be attributed to the lack of adoption in the metal finishing industry particularly since hexavalent chromium was still required for sealing the anodic film allowing it to meet stringent 336 hour salt spray requirements which is the industry standard for anodize films. Sikorsky has taken BSAA to the next level of environmental impact by specifying the use of a trivalent chromium seal (e.g. Metalast TCP-HF) over the traditional dilute dichromate. Anoplate is happy to announce that we are approved by Sikorsky to process to Type IC (BSAA) with this seal and have already seen an influx of incoming work to this specification.



While BSAA is suitable as a primer for subsequent adhesive bonding, many primes are looking to other chromic anodize alternatives due to their ability to provide even greater bonding strength although there is no clear direction yet established. For instance, Sikorsky and Bell Helicopter both favor phosphoric acid anodize as optimum for adhesive bonding applications whereas Airbus is turning towards tartaric acid anodize. It should be clearly stated that while BSAA will exceed the standard corrosion performance threshold exhibited by chromic anodize, neither phosphoric nor tartaric anodize can, thus, these chromic alternatives are relegated to solely applications where only adhesive bonding is required.

Boric-Sulfuric Acid Anodize represents a leap forward in providing an environmentally-responsible replacement to chromic acid anodize for straight forward corrosion resistance applications. Please contact Milt Stevenson Jr [miltjr@anoplate.com](mailto:miltjr@anoplate.com) or Sean Novak [snovak@anoplate.com](mailto:snovak@anoplate.com) to discuss switching your parts over to BSAA today.

### Additional Resources

- [www.finishingtalk.com](http://www.finishingtalk.com)
- <http://www.finishingtalk.com/publication-basic-comparisons-of-chrome---non-chromate-alternative-anodizing-s-28.html>

## Q&A

*Q: Your web site says (under sulfuric ano): "Although dyed anodized films are reasonably colorfast, they have a tendency to bleach under prolonged direct sunlight." What "color life" can I reasonably expect for 6061 aluminum, 1/2" thick sign letters, for exterior of building, BLACK dyed, and sealed. By "color life" I mean how long before the letters are noticeably faded? We are a sign manufacturer in San Diego ... lots of sunshine. Thanks.*

San Diego Sign Maker

*A: Let's put it like this – Syracuse NY is probably the cloudiest (i.e. lacking sun) city in the US second only to Seattle. Black "dyed" anodized and sealed parts on motorboats last maybe only 3 or 4 seasons (keep in mind that the boating season in Central New York is only 6 months long tops). If that's an indicator, in San Diego you might only get perhaps a year or two. Dyed anodize is fine for indoor applications but if I were you I would use electrolytic coloring to blacken the anodize. This is what architectural firms use on exterior anodized components. Another term used for this type of anodize is 2-step anodize. Dyed anodize on building in San Diego – I wouldn't do it!*

### THE REST OF THE STORY

*(from the sign maker): We already did this project last year and the client is saying the letters are noticeably fading already. When we first did it the letters turned purple in a few weeks!! We had our vendor redo them (I suspect he didn't seal them). From what I've read and been told by others, dyed ano (if done properly) should at least last a LOT longer than a year. Three to five years?? Even in the full SD sun?? It might not have been the right way to go ... but it's the way we went.*

# Everything's Under Control

Anoplate's Process Control technicians have plenty to keep them busy. They work around the clock to ensure that every one of our over 400 process tanks are operating within specified ranges and producing quality finishes. Our Chemical Technicians have a variety of analysis methods at their disposal including titrimetric tests, atomic absorption, spectrophotometry, tensiometers, and hull cells. Every tank is scheduled for regular analysis and we utilize SPC software to track

trends and schedule chemical maintenance. The key to making all of this run smoothly are Anoplate's Process Control Technicians. Take a minute to get to know our team:

## Chris Koch (1)

### Director of Process & Product Quality Engineering

Over the last 12 years Chris has moved from Lab Technician to Lab Manager and now to her current role overseeing not only process quality but also product quality. She has an excellent technical background and strives to ensure that we have the resources in place to provide our customers with the high quality finishes they expect from Anoplate. She is a graduate of SUNY Environmental Science and Forestry and holds a degree in Environmental Studies.

## Jeremy Nicholson (2)

### Lab Manager

With over 11 years in the plating industry and 6 years running process control labs, Jeremy coordinates the lab's problem solving, tank maintenance, and analysis procedures. He earned a BS in Chemistry from Edinboro University in Pennsylvania and is a member of our internal Innovation Team.

## Aric Potter (3)

### Tech II

Aric came to Anoplate in late 2009 with a BS in Biology from Rensselaer Polytechnic Insti-

tute. He supports the third shift and helps prepare the baths to ensure they are ready for full production when first shift begins. He is also enrolled in Green belt training.

## Rory Rossignol (4)

### Tech III

Rory has been at Anoplate for 3 years, with a total of 8 years in the plating industry. He participates in R&D experiments, setting up new tanks, troubleshooting, and is very experienced in maintaining our electroless nickel baths.

## Nicole Elmer (5)

### Tech II

Originally from Hamilton, Ontario, Nicole has an Associate's Degree in Chemical Engineering and has over 10 years of experience doing analytical chemistry and macro-biology.

## Sue Schad (6)

### Tech I

Sue has worked at Anoplate for 5 years and is approaching her 2nd year as a process control technician. She handles our second shift and enjoys performing analysis and maintaining tanks.



## ANOPLATE NEWS

Spring 2011

A publication of

Anoplate Corporation

459 Pulaski Street

Syracuse, New York

13204-1134

Phone: (315) 471.6143

Office Fax: (315) 471.7132

Quote Fax: (315) 471.4206

[www.anoplate.com](http://www.anoplate.com)

Anoplate is an equal opportunity employer

For a free subscription to

Anoplate News please email:

[sales@anoplate.com](mailto:sales@anoplate.com).

Established 1960

