

SYNERGIES

VOLUME 25

Tomorrow's Materials Solutions...Today.

NASA REVISITS ORIGINAL MOON LANDING TECHNOLOGY FOR MARS SUCCESS MAGNAPLATE HELPS SATISFY NASA'S CURIOSITY



Curiosity rover

General Magnaplate is proud to announce that its coatings are playing a mission critical role in the exploration of Mars by the Curiosity rover.

Following the stunning photos sent to earth, the robot will move on to arm testing so that it can eventually gather Mars soil samples for analysis to determine whether the planet has environmental conditions favorable for supporting microbial life. General Magnaplate's Canadize® engineered coating technology has been utilized on this part of the system to ensure that the arm itself and 'cutter cups' do not chip or flake and contaminate the soil samples.

"Our Canadize coating technology was utilized by NASA on the original Apollo 11 moon landing to prevent galling at the joints and in the drive shaft of titanium core-sample drill tubes," reports Candi Aversenti, CEO of General Magnaplate.

"When Honey Bee Robotics contacted us to address coating the titanium shaft and 'cutter cups' that were being used to gather the soil samples, we were able to deliver a mission-tested solution. In addition, Canadize also prevents the outgassing of metals so it solved multiple problems for the design engineers working on this part of the Mars rover Curiosity system."

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Edmund Aversenti Appointed President of the IHAA



Ed Aversenti, COO & President of General Magnaplate

In September Edmund Aversenti, General Magnaplate's President and COO, was appointed President of the IHAA - the International Hard Anodizing Association.

Formed in 1989, the IHAA is an organization of global companies engaged in the production of hard anodized finishes on aluminum components, either for customers or for their own products.

The aims of the association are: to promote the common interests of its members and the progress and growth of the hard anodizing industry; to

engage in the promotion of hard anodizing by the preparation of technical data sheets and other publicity and educational programs; to provide members with technical and general information relating to hard anodizing, new alloys, products and processes, specifications and test methods.

"I am very proud to have been appointed president of such a reputable industry organization, and it's always flattering to be recognized by one's peers," reports Edmund Aversenti. "As president, I look forward to helping drive forward the aims of the IHAA and ensure that all future meetings and symposiums provide value and education to our members."



Edmund Aversenti with the IHAA Board of Directors

WELCOME TO THE FAMILY

General Magnaplate is delighted to welcome two new members to our team.



First and foremost, Ric Wade has joined as the new operations manager of our Ventura facility in California. Ric has over 25 years industry experience in metal finishing – he managed a metal finishing and plating

facility in Chicago, and most recently managed the plant for a major faucet and coatings manufacturer. Ric graduated with a BS in Chemistry/Biology from Andrews University.

Ric Wade

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Justin Picha, the new technical sales representative for the South East, joins Magnaplate with a strong manufacturing background particularly in quality engineering and failure analysis. He's a graduate of the Nashville Auto Diesel College and has a strong



interest in all kinds of motor sports from NASCAR to power boating.

Justin Picha

Serving: MS, AL, TN, GA, FL

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NASA REVISITS ORIGINAL MOON LANDING TECHNOLOGY FOR MARS SUCCESS

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Canadize was originally developed when General Magnaplate's R&D team recognized that titanium is highly susceptible to hydrogen pickup or embrittlement, and created a series of coating processes that would preclude any hydrogen absorption. It improves wear resistance and lowers the coefficient of friction of titanium substrates. Operating in ranges from -200F to 1200F, Canadize resists scratching, chipping, flaking or rubbing off.

You can find out more about Magnaplate's Canadize coating here:

<http://www.magnaplate.com/coatings/canadize/>

Canadize coating technology was utilized by NASA on the original Apollo 11 moon landing.



BUILDING FOR THE NEXT 60 YEARS

MAGNAPLATE LAUNCHES MANAGEMENT TRAINEE PROGRAM

General Magnaplate is luring the best and the brightest young industry talent with the launch of its new Management Trainee Program. Already underway with Luke Saunders and Daniel Mints, the program continues Magnaplate's track record of hiring and developing young, emerging engineering talent.

"This program will expose our new management trainees to every facet of the business," explains Candi Aversenti, CEO of General Magnaplate. "From working the coating lines to handling inside sales technical calls, these new trainees will be exposed to every side of our business and they'll understand how our customers really rely upon us to provide engineering solutions – not just coatings."



Luke Saunders



Daniel Mints

"Needless to say we are very excited because these young, talented individuals will eventually be the future of General Magnaplate."

Luke Saunders, who already has experience with General Magnaplate as technical sales representative for Michigan, Ohio and Indiana, is one of the first members of the program. A graduate of Washington University, St. Louis, Luke is well versed in industrial automation from his two-year stint with Magnalube, an industrial lubricants producer. His broad background includes experience in communications with a Texas-based software company, in finance for a large investment and financial planning company in Washington, DC, and in marketing for an international trade company in China. Luke is also proficient in Mandarin Chinese.

He is joined by Daniel Mints, who entered the program in August, and is currently working out of the New Jersey facility where he is training with the production and QC departments learning each of Magnaplate's processes intimately. Daniel has a Masters in Biomedical Engineering from the University of Rochester, NY, where he developed a lot of materials experience in the medical and dental industries.

New White Papers Available Online

Check out the Literature section of our web site to download our two new white papers.

Processing and packaging applications in the food and drug industries have many criteria in common, because both industries must meet stringent standards developed to guarantee the utmost safety of products intended for human consumption.



Our new medical and pharmaceutical paper, entitled "**Engineered Coatings Minimize Downtime, Improve Sanitation in Medical and Pharmaceutical Applications**" examines how specialized coatings can be used to enhance the surface of metals and other substrates to protect machine components,

improve sanitation, provide antimicrobial properties and solve performance problems.



Our new oil and gas white paper, "**Engineered Coatings Alleviate Drill Tooling Wear**", examines how traditional coatings simply don't stand up to the levels of sour gas, pressure and rotating contact found in today's oil and gas wells.

Deep wells not only tend to exhibit concentrations of sour gas but also subject drilling tools to high temperatures and pressures. Making matters worse, the rotary action of drilling exposes tools to constant wear. Traditional coating technologies cannot protect tooling against corrosion, galling, pitting and other wear mechanisms, and the tough conditions imposed by deep wells require the added protection offered by highly engineered coatings.

60TH ANNIVERSARY CELE

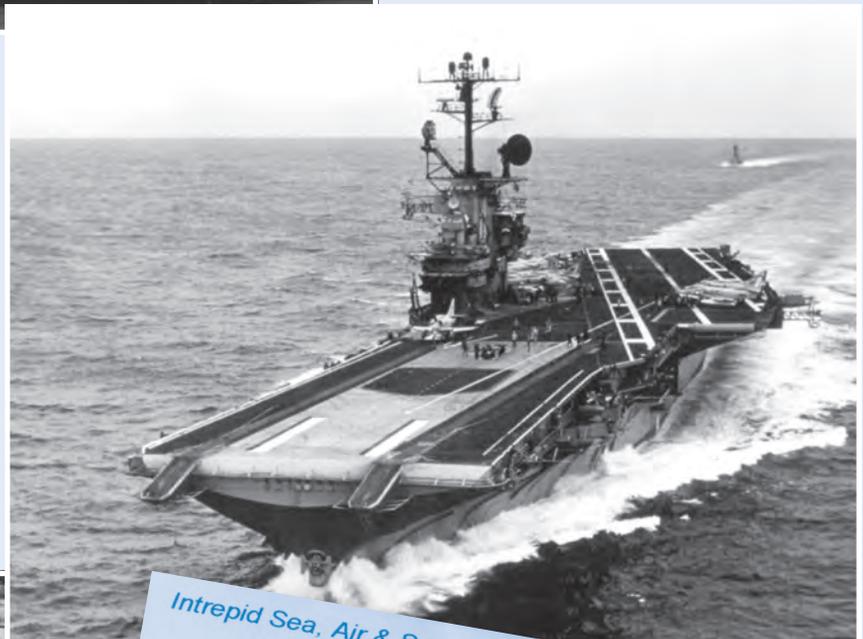


General Magnaplate proudly celebrated its 60th anniversary at three separate locations this year: the USS Intrepid Museum in NY, the Texas Rangers ballpark in Arlington, TX and at the Squashed Grapes Winery in California.

USS INTREPID MUSEUM

The celebration at the USS Intrepid was particularly apt because of General Magnaplate's long history of working on defense applications.

The USS Intrepid also known as The Fighting "I", is one of 24 *Essex*-class aircraft carriers built during World War II for the United States Navy. She is the fourth US Navy ship to bear the name. Commissioned in August 1943, *Intrepid* participated in several campaigns in the Pacific Theater of Operations, most notably the Battle of Leyte Gulf. The carrier was used to recover Mercury and Gemini astronauts during the 1960's when they splashed down into ocean after Earth orbit during the early days of America's space program.



The entire staff from the New Jersey plant visited the great aircraft carrier and were also able to see the Enterprise space shuttle which is on display at the Intrepid.

CELEBRATIONS

TEXAS RANGERS BALLPARK



Texas celebrated the 60th anniversary with America's favorite pastime at the Texas Rangers ballpark in Arlington. They really hit it out of the park that night!



Candi Aversenti and her grandson Nolan Russo, aged 10, enjoying one of the capsules on display at the Intrepid.

General Magnaplate 60th

The logo for General Magnaplate's 60th anniversary. It features the company name "General Magnaplate" in a bold, sans-serif font, with "60th" below it. The "60th" is stylized with a large "0" and a smaller "th" superscript. A stylized atom symbol, consisting of a central sphere with three elliptical orbits, is integrated into the design, positioned between the "0" and the "th". A registered trademark symbol (®) is located at the bottom right of the atom symbol.

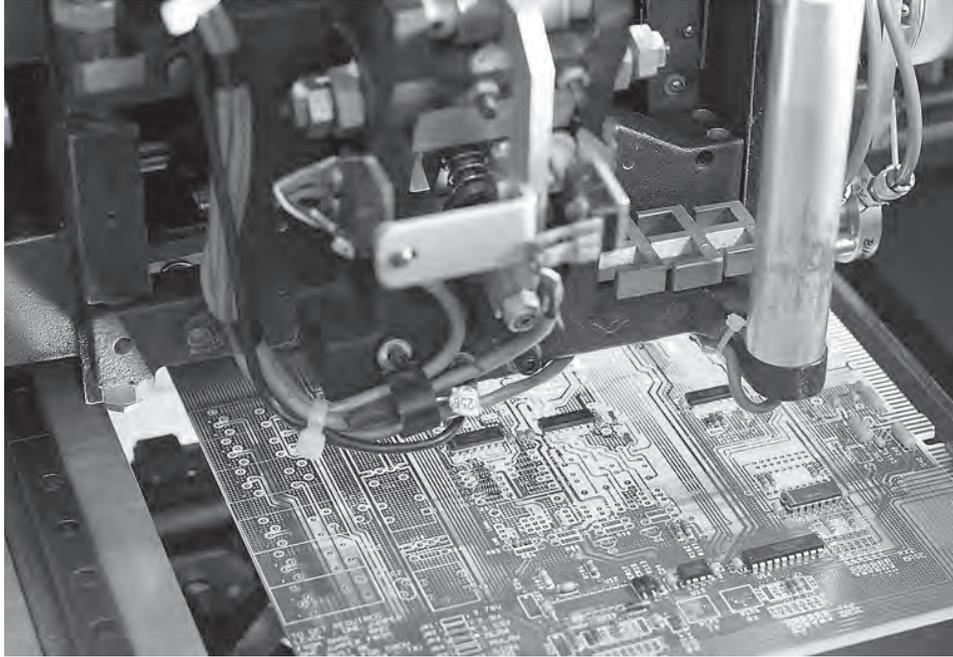
SQUASHED GRAPES WINERY

The California plant celebrated the anniversary in style at one of the State's premier wineries. Magnaplate's coatings are used in bottling and labelling lines around the world, but it's always nice to sample some of the product too!

TECHNICAL FOCUS

MAGNAPLATE LAUNCHES TUFRAM OMEGA™:

New Conductive Ceramic Coating Opens Up More Electronics Applications



Solutions Driven by Customer Need

A customer in the semiconductor industry approached General Magnaplate to develop a coating for aluminum rollers with improved electrical conductivity (surface resistance of 10^6 - 10^8 ohms) to dissipate static charges generated on these rollers. The result? The development of Tufram Omega.

Magnaplate's latest surface enhancement coating, Tufram Omega, was developed in response to customers' requests for a coating on aluminum that would have a specific ohm range.

Traditional coating processes for aluminum, such as anodization, create a hard and wear resistant Al_2O_3 layer on the surface of aluminum but also leave the surface highly insulative (non-conductive). The electrical resistivity of a typical anodized aluminum surface for example, lies between 10^{11} and 10^{13} Ω/cm , which gives rise to static buildup and cannot bleed off through this highly insulative anodic surface, and may lead to damage of electrical components. Aluminum on its own or with a conductive coating is too conductive and will cause the circuit to short. To reduce the static buildup and provide the proper conductivity, the surface of the part should preferably be in the range of $\geq 10^6$ to $\leq 10^9$ Ω/cm .

Following development and testing of the new coating, testing done by an independent laboratory on Tufram Omega has shown surface resistance measurements between 10^6 and 10^8 ohms. The coating was applied and results surpassed the customer's requirements.

"Tufram Omega really demonstrates the solutions-oriented culture here at General Magnaplate," reports Ed Aversenti, COO of General Magnaplate. "Our customer approached us with a problem and to solve it we developed a very specific coating. Now our other customers can benefit from this technical development and we look forward to applying it in other applications."

There are many potential applications for Tufram Omega including (but not limited to) medical diagnostic instruments, semiconductors, automated handling equipment, exterior surfaces of spacecraft, telephone equipment, and satellite components.

For more information, or to request literature on any of our "synergistic" surface enhancement coatings, contact:



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