

# SYNERGIES

VOLUME 28

Tomorrow's Materials Solutions...Today.

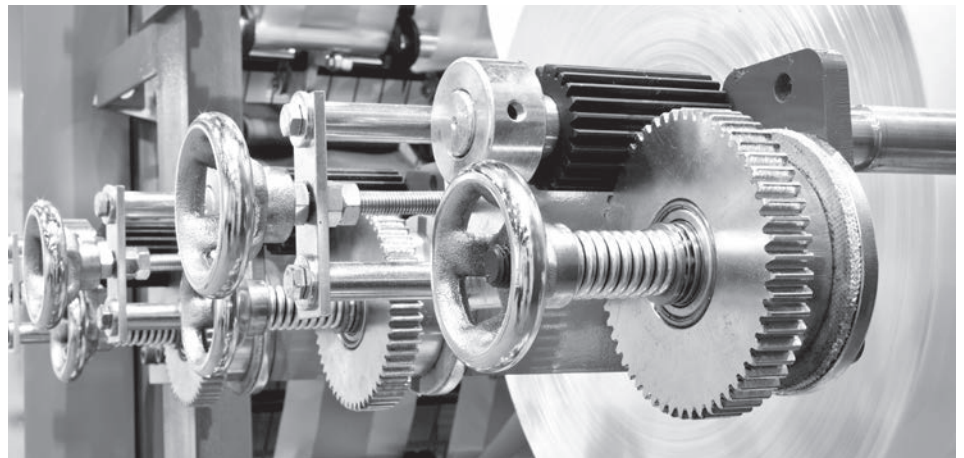
## NEW COATING DELIVERS LOW FRICTION AND WEAR RESISTANCE WITHOUT POLYMERS

### TECHNICAL ADVANTAGES

- Excellent abrasion and wear resistance
- Low coefficient of friction without polymers or solid dry lubricants
- Excellent release properties without polymers or solid dry lubricants
- Uniform coating deposition
- No need for secondary grinding
- Non-shedding and non-outgassing
- Outperforms other nickel alloys
- For most ferrous and non-ferrous alloys
- Hardness up to 68 Rc
- Good corrosion resistance

### IDEAL APPLICATIONS

- Composite tooling
- Plastic molding equipment
- Semiconductor equipment
- High temperature valve applications
- Aerospace applications



Magnaplate's new Nedox PF™ coating targets applications with sensitivity to polymers and solid dry lubricants that aren't always conducive to environments where particulate generation is undesirable.

Most polymeric or dry lubricant coating systems have a limitation in regards to temperature, since they can only function within the 500-600°F (260-315°C) range. For these applications, General Magnaplate has developed Nedox PF. The composite ceramic, nickel alloy composition of Nedox PF allows it to operate at temperatures up to 1500°F (815°C) and still maintain low friction and release properties.

The coating offers good corrosion resistance, excellent abrasion resistance and hardness, and it can be applied to both ferrous and non-ferrous alloys.

See our technical bulletin on the Nedox PF page on our new website for COF, taber abrasion and hardness measurements.

## 2015 TRADE SHOW CALENDAR

### WEST PACK 2015

PACIFIC DESIGN & MANUFACTURING

February 10-12

Anaheim Convention Center  
Anaheim, CA  
Booth #5367

### ICE 2015

INTERNATIONAL CONVERTING EXHIBITION

February 10-12

OCCC  
Orlando, FL  
Booth #231

### PACK EXPO EAST 2015

February 16-18

Pennsylvania Convention Center  
Philadelphia, PA  
Booth: #1063

### OTC 2015

OFFSHORE TECHNOLOGY CONFERENCE (OTC)

May 4-7

Reliant Park  
Houston, TX  
Booth: #8615

### EAST PACK 2015

June 9-11

Jacob K. Javits Convention Center  
New York, NY  
Booth: #3239

# ADVANCED COATINGS HELP PHARMACEUTICAL MACHINERY

Elizabeth-Hata chooses Nedox® and Tuftram® coatings for its rotary press



**Machine builders have long used** engineered coatings to reduce wear. In the pharmaceutical industry, however, picking the right coating can be difficult. FDA regulations rule out many common coatings in product-contact applications. Making matters worse, some of the coatings that do pass muster with the FDA are not widely available globally, which is important as machine builders expand internationally.



Elizabeth-Hata, a leading manufacturer of tablet presses, recently found a couple of coatings that not only comply with FDA requirements but also have global availability. For its Eliza-Press rotary tableting machine, the company chose Nedox and Tuftram coatings from General Magnaplate Corporation. “Both coatings are FDA compliant, so we were able to use them in

product-contact areas that are susceptible to abrasive wear,” says Jim Calvin, Elizabeth-Hata’s International Operations Manager.

Those product-contact areas include a powder feeder, scrapers and turrets. Left unprotected, all of these components can experience abrasive wear as the machine compresses powdered pharmaceuticals into tablets at pressures up to 20 tons.

**Tuftram For Aluminum.** For the press’s aluminum parts, Calvin selected Tuftram HO. These parts include the feeder, scrapers and deck plates. With a hardness of 40 to 50 Rc and a dry-lubricated surface, Tuftram gives all these components good release properties relative to the powder. Tuftram also protects the aluminum parts from wear, corrosion, sticking and galling.

Before choosing Tuftram, Calvin passed over a variety of industry coatings—including hard anodize, polymer impregnated hard anodize, hard coat anodize and sulfuric anodize. Some of these aren’t considered FDA compliant, while others had subpar wear properties and longevity compared to Tuftram.

**Nedox For Steel.** For the press’s steel parts, such as the 316 stainless steel turret that holds the die and punches, Calvin picked Nedox SF-2. With a hardness of Rc 65 and inherent lubricity, Nedox protects the turret from wear and corrosion. By selecting Nedox SF-2, Calvin rejected a number of industry coatings—including nickel-plating, electroless nickel plating, sulfamate nickel, co-deposited electroless nickel and polymer-impregnated electroless nickel.

**Global Availability.** After expanding its manufacturing operations to India in 2008, Elizabeth-Hata found that it needed to choose technologies that could be applied consistently regardless of the manufacturing location. That need factored into Calvin’s coating selections since Magnaplate has licensed its coatings to partners around the world, including in India. “If I have a part made in India, I want it to have the same coating as the parts we make domestically,” Calvin says. With Tuftram and Nedox, that’s the case every time.



As part of our Magnaplate Worldwide initiative to become a global supplier for our customers, General Magnaplate’s coatings are now available in India from our licensee **Electrochem**.

## Electrochem

S. No. 136 / 2 / 2 A  
Dalviwadi, Sinhagad Road  
Dhayari, Pune - 411 041  
Maharashtra, India

Phone: +91 20 243 80619  
Fax: +91 20 243 80149

[response@electrochempune.com](mailto:response@electrochempune.com)  
[www.electrochempune.com](http://www.electrochempune.com)



# ERY MEET FDA STANDARDS

## NEDOX PROPERTIES

- Operating temperatures from -250°F (-157°C) to 550°F (288°C).
- Surface hardnesses up to Rc 68 (940 Vickers).
- Coating thicknesses between 0.0002 to 0.002 inches, ±10%.
- Chemical and acid resistance.
- Self-lubricating, non-porous, non-wetting surface characteristics.
- Good electrical properties, including:
  - Low dissipation factor.
  - Low coefficient of thermal expansion:  $7.22 \times 10^{-6}$  in/in/1°F ( $13 \times 10^{-6}$  in/in/1°C).
- Excellent thermal conductivity: 0.0105 - 0.0135 Cal-cm/sec/°C.
- Compliance with industry standards, including:
  - ASTM B656 and ASTM B733.
  - USDA and FDA compliance.
  - NASA material #20386 in the MSFC Handbook 527F, Johnson Space Flight Center #D9604F.

## TUFRAM PROPERTIES

- Temperature range from -360°F (-218°C) to as 800°F (+427°C).
- Good thermal conductivity.
- Surface hardness between Rc 40 and Rc 65.
- Properties that exceed AMS 2469 and AMS 2482 requirements.
- Permanent self-lubricating properties for extended wear.
- FDA, USDA compliance.
- Abrasive wear and galling prevention.
- Simple cleanup and sanitation.
- Mold release properties.
- Low coefficient of friction.
- High dielectric strength.
- Resists chipping, peeling and flaking.
- Compliance with the End of Life Vehicle initiative for the automotive industry.
- Non-wetting surface properties.
- Excellent performance in extreme environments.

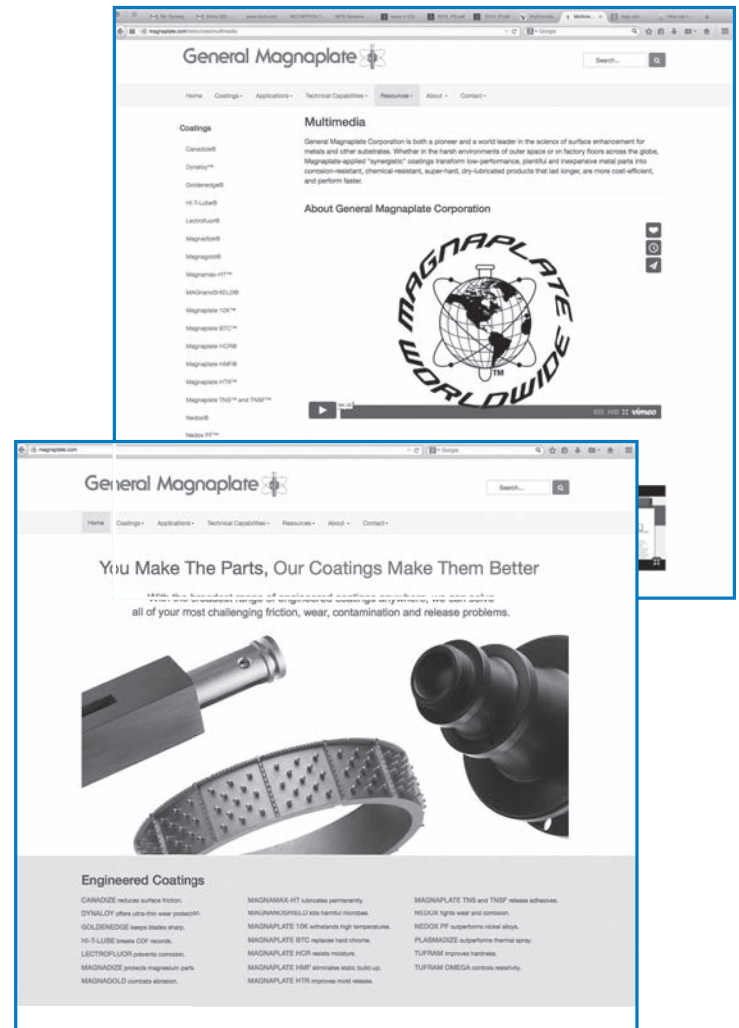
# General Magnaplate Launches New Website

General Magnaplate has launched a new website designed to make it easier for engineers and plant managers to access all the information they need on our full range of 20 engineered coatings.

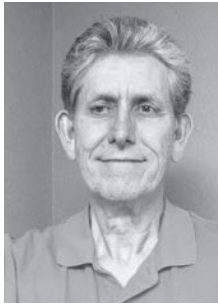
The new site also features a wide range of applications information and technical resources including:

- white papers,
- application case studies,
- technical data sheets,
- our mobile friction app,
- new product videos,
- our new coatings technology blog.

Make sure you check out the **Multimedia** section of our new site to view the informative new coatings videos we have created. In addition, you will also find a great overview on our Company and a legacy video that tells the full story of the past, present and future of General Magnaplate.



# Some New Faces In Our Technical Sales Team



**Raymond Grumling**  
Sales Manager, Ventura, CA Facility

Congratulations to Raymond Grumling who joined Magnaplate in 2010 and, following a stint in inside sales, has become the new sales manager for the Ventura plant in California. This facility is responsible for General Magnaplate's customers in California, Nevada, Arizona, Colorado, Washington, Oregon, Utah, Idaho, Wyoming, and Montana.

Raymond has a strong background in metals and fabrication, as well as in fluid handling products used in fields such as agriculture, chemical manufacturing, oil production and refining, and waste water treatment. When he is not serving customers, Raymond enjoys motorcycles, autos, boats, planes – and anything that moves!



**Robert Fess**  
Territory: Northern California,  
Nevada, Washington and Oregon  
Cell: (732) 540-5957  
Email: rfess@magnaplateca.com

Robert Fess joins Magnaplate after years as an outside salesman for an aluminum and plastic distributor/processor. He previously worked in technical sales in the industrial fluid handling systems field.

A graduate from the University of Santa Cruz with BS degrees in Biology and Environmental Sciences, his hobbies include golfing, bocce, gardening and home improvement projects.



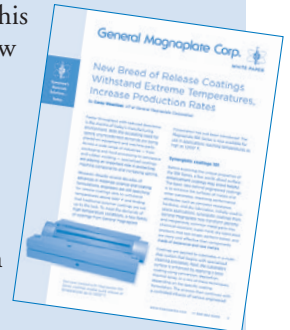
**Bo Dobkins**  
Territory: Georgia, Tennessee,  
Alabama, Mississippi, and Florida  
Cell: (732) 540-4918  
Email: bdobkins@magnaplatetx.com

Bo Dobkins joins Magnaplate with 12 years technical sales experience. He graduated from North Georgia Tech and enjoys the outdoors, including camping, hunting, fishing and golfing.

## WHITE PAPER FOCUS

As a leading developer of engineered coatings technology, General Magnaplate is constantly producing new technical resources for our engineering customers. Check out our white paper library in the **Resources** section of our new website to see the latest offerings available, including this recent one on our new 10K coating.

### New Breed of Release Coatings Withstand Extreme Temperatures, Increase Production Rates



Faster throughput with reduced downtime is the mantra of today's manufacturing environment. With the escalating need for speed, unprecedented demands are being placed on equipment and machine parts. Across a wide range of industries — from packaging and food processing to aerospace and rubber molding — specialized coatings are playing an important role in protecting machine components and increasing uptime.

However, despite several decades of advances in materials science and coating formulations, engineers are still searching for release coatings able to withstand temperatures above 500°F (260°C) and finding that traditional polymer coatings are not up to the task. To meet the demands of high-temperature conditions, a new family of coatings from General Magnaplate Corporation has just been introduced. The Magnaplate 10K Series is now available for use in applications reaching temperatures as high as 1000°F (538°C).

Visit the technical resources section of our site to download this white paper, and others.

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



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