

European REACH Targets Chromium and Cobalt

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The European Union REACH regime continues to expand the number of chemicals classified as carcinogenic, mutagenic or reproductive toxics (CMR) and to put forward more of them as candidates for authorization. The new list (see right) of those now going forward to the European Commission includes chromic acid, most of the chromates used for chromate conversion and chromated primers, and most of the cobalt salts used for cobalt alloy electroplating.

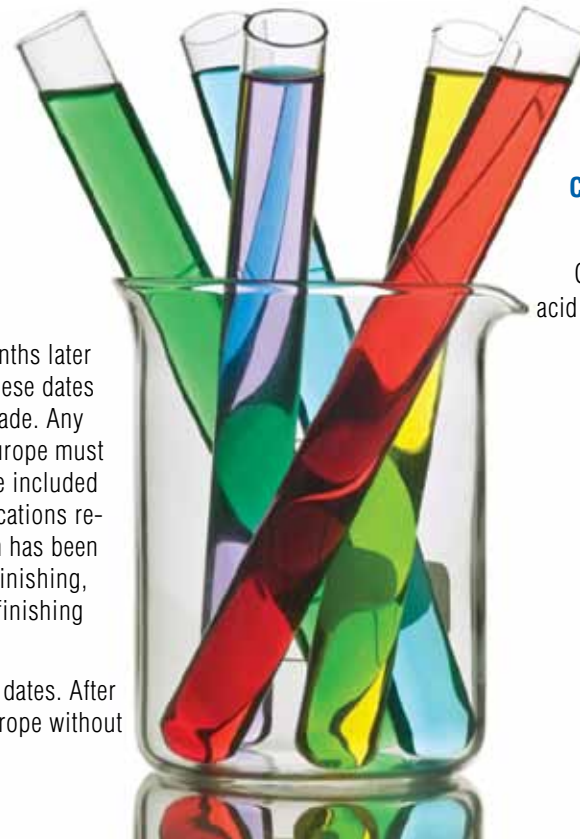
Since REACH covers chemicals and not emissions, this affects both functional and hexavalent decorative chrome equally, but not trivalent plating. This is the final step for inclusion in Annex XIV, after which they will not be able to be used in Europe without specific authorization, or explicit permission, from authorities.

What does this mean for surface finishers, and when? Chemicals enter into Annex XIV about Feb 2013

(depending on a European Parliament vote).

1) Authorization application dates: 21 months later for chromates, 24 months for cobalt salts. After these dates no further applications for authorization can be made. Any European manufacturer or chemical supplier to Europe must ensure that all of their uses of these chemicals are included in an authorization application by this date. Applications require a large and expensive dossier. A consortium has been set up to pursue authorization for CrO₃ for metal finishing, and the NASF has been in contact with European finishing organizations.

2) Sunset dates: 18 months after application dates. After these dates these chemicals cannot be used in Europe without authorization.



Newly Listed Chemicals/Metals under REACH

- Ammonium dichromate
- Chromic acid, Oligomers of chromic acid and dichromic acid, dichromic acid
- Chromium trioxide
- Cobalt dichloride
- Cobalt(II) carbonate
- Cobalt(II) diacetate
- Cobalt(II) dinitrate
- Cobalt(II) sulphate
- Potassium chromate
- Potassium dichromate
- Sodium chromate
- Sodium dichromate
- Trichloroethylene

Calling All Suppliers

New NASF Supplier Committee launched for 2012.

The NASF supplier community is expanding opportunities for engagement this year. In January, more than 30 representatives from chemical and equipment companies met in Chicago to launch a new NASF committee focused on supplier concerns for finishing. The full-day agenda and discussion covered market, technology and regulatory topics for large and small supplier companies.

NASF President Tony Revier (Uyemura) kicked off the meeting, noting that the association spent 2011 aggressively rebuilding, retooling its membership structure and charting a strategic course for the future. "The supplier community faces some unique issues, and we're excited to expand the association's programs this year to address them," Revier says.

Industry Statistics, New Trends and Expanded Promotion

The session covered priorities for various supplier segments, and kicked off with a discussion on the latest NASF market statistics led by supplier survey manager Dave Lucas, Blair Vandivier (Asterion), Erik Weyls (Coventya) and Terry Copeland (Enthone). Attendees agreed the new analysis was extremely valuable and should be continued.

Invited representatives from DuPont—Dr. Kai Schubert and Dr. Allison Yake—along with U.S. EPA officials and NASF Govern-



NASF leader LaVaughn Daniel (Danco Metal Surfacing) views student projects for the West Coast Bright Design Challenge.

ment and Industry Affairs, discussed the outlook for fume suppressants and pending restrictions on perfluorinated chemicals.

Also spotlighted was the association's expanded industry promotions focus for the finishing industry, most recently through the NASF's Surface Technology Initiative. As an example, this year NASF is deepening its involvement in student design competitions through the Bright Design Challenge with the Detroit-based College for Creative Studies and the West Coast Bright Design Challenge with the Pasadena-based Art Center College of Design.

A Changing Regulatory Landscape

The session also covered new topics for suppliers from the alphabet soup of federal agencies, including NASF Government and Industry Affairs' update on new measures affecting suppliers from the SEC, DEA, DOT, EPA and OSHA.

Lynn Bergeson, a nationally recognized expert on chemicals policies, forecast the North American impacts to industry MSDS requirements from OSHA's soon-to-be finalized Globally Harmonized System (GHS), new European REACH restrictions on chromium and cobalt announced in December 2011, and, for some companies, new U.S. EPA chemical data reporting requirements starting in February 2012.

Attendees agreed that launching a new supplier committee would be highly beneficial, and selected Enthone's Brian DeWald to chair the committee in 2012. Stay tuned for information on future meetings and programs.

Upcoming NASF Events

March 11 – 15: NASF Management Conference

Inter-Continental Hotel, San Juan, Puerto Rico
This program for executives, owners and managers in the finishing industry provides a venue to engage your peers, discuss timely issues and gain new business insights. NASF's outside economist, Dr. Ken Mayland, will return with a comprehensive economic outlook and his forecast for manufacturing and finishing. A panel discussion on finishing industry trends and the launch of a new NASF Management Committee is planned as well.

April 24 – 26: NASF Washington Forum

Ritz-Carlton Pentagon City, Arlington, VA
This event provides timely briefings from top experts thinkers and decision makers in Washington. Join us for a strategic policy discussion and Capitol Hill meetings on U.S. manufacturing policy and the current round of threats to finishing. NBC News election analyst Charlie Cook is back, joined by "Wall Street's Tax Expert" Andy Friedman on the tax outlook for business and the nation's fiscal future.

June 11 – 13: NASF SUR/FIN 2012

South Point Hotel & Casino, Las Vegas, NV
SUR/FIN is truly where the world of finishing comes together. The show floor is nearly 90 percent sold!

Featuring: Supplier Exhibits, NASF Manufacturing & Technology Conference, Rolls Royce Keynote Dr. Mary Lee Gambone, NASF—Pentagon Surface Finishing Workshop, Global Finishing Technology "Roundtable" and Networking.

Dec. 4 – 7: SUR/FIN Asia-Pacific

Singapore
NASF is partnering with the Singapore Surface Engineering Association (SSEA) for this event. With attendees from the entire Southeast Asian region, SUR/FIN Asia-Pacific is the only South East Asia event totally dedicated to surface finishing, surface engineering, surface coating, electroplating and precision engineering.

Visit NASF.org or contact Cheryl Clark at cclark@nasf.org for details and registration.



Manufacturing Extension Program Working on “Buy American” Efforts

The federal Manufacturing Extension Partnership (MEP) program is working with the Department of Transportation in identifying American companies to supply equipment for investment in the U.S. rail system. MEP centers nationwide aim to connect American companies to the initiative so that the federal government can meet strict “Buy American” requirements in the recent transportation appropriations bills passed by Congress.

The centers will help find American companies to bid on the upcoming \$782 million order for domestically-built passenger rail trains that will travel in California, Oregon, Washington, Illinois, Missouri, Michigan, Indiana and Iowa. The centers “will also help DOT assure that American companies and workers benefit from the state of California’s request for information (issued on October 18, 2011) for new bi-level passenger coaches,” says the Commerce Department. A request for proposals will be issued this winter with winning bids selected next summer.

EPA sends Chromium Air Emissions Rule to White House

NASF will be meeting with senior EPA officials and White House staff to address persistent industry concerns over the agency’s data and rationale for strict new air emission limits from chromium finishing processes.

The agency in mid-January sent the rule for review by the White House Office of Management and Budget prior to formal issuance of a proposed rule in the coming month. At this stage, NASF has argued that the proposed rule provides essentially no new environmental and health benefits but could impose unnecessary burdens on many surface finishing operations.

Once EPA publishes the proposed rule, NASF and the industry will have the opportunity to address the agency’s new limits during a public comment period. For questions or additional information, please contact Jeff Hannapel at jhannapel@thepolicygroup.com.

New Pentagon Rules Pending on Counterfeit Parts and Components

Congress took aggressive steps in December to rein in sales of counterfeit electronic parts or components used in military weapons systems, and new regulations are pending to detect counterfeits and penalize suppliers who have failed to exercise due diligence. The 2012 defense authorization bill spells out steep fines and jail time for those involved in trafficking, and the new framework covers all contractors supplying electronic parts. Regulations are on their way in 2012.

NASF Washington Forum Speaker on Why U.S. Debt Was Downgraded...

Commentator Richard McCormick, who presented at a recent NASF Washington Forum and edits *Manufacturing & Technology News*, put the U.S. budget predicament in clear terms this month with this simple comparison:

In The Simplest Terms:

- U.S. tax revenue: \$2,170,000,000,000
- Federal budget: \$3,820,000,000,000
- New debt: \$1,650,000,000,000
- National debt: \$14,271,000,000,000
- Recent budget cut: \$38,500,000,000

Remove eight zeros and pretend it’s a household budget:

- Annual family income: \$21,700
- Money the family spent: \$38,200
- New debt on the credit card: \$16,500
- Outstanding balance on the credit card: \$142,710
- Total budget cuts: \$385



Technical Papers

Characterization of Electroless Deposition of Ni-P-Alumina and Ni-P-TiO2 from Alkaline Hypophosphite Baths in the Presence of Gluconate as a Complexing Agent

M.S. Ali Eltoun, Sudan University of Science & Technology; A.M. Baraka and S.A. Abdel Gawad, Cairo University; and Elfatih A. Hassan, Sudan University of Science & Technology

By coating metals with a metallic matrix composite containing particles of alumina or titania, they can be protected from abrasion. Unfortunately, these materials are brittle and offer little or no adhesion potential to be used alone as a coating material. However, a metal matrix can be used to hold the particles together and facilitate good adhesion to the metal surface being coated. These composites have a considerably higher yield strength and hardness than that of the pure metal. Composite coatings can also reduce corrosion. The high temperature oxidation resistance of Ni-P alloys has been significantly increased by the addition of alumina, matching a decrease in the rate of oxidation with increasing alumina in the composite. This suggests that electroless Ni-P-alumina composite coatings should offer good wear and corrosion properties at high temperatures.

The structure of as-deposited electroless Ni-P is amorphous with high phosphorus content. However, with a heat treatment, the coating becomes crystalline and its hardness and wear resistance are greatly improved.

Embedding particles in electroless deposited metals is a convenient method of preparing composite coatings, and the particles increase the mechanical and physical properties of the coating. In general, greater particle incorporation and uniform distribution was found in composite coatings obtained from solutions containing larger particles.

Using a complexing agent such as citrate in electroless Ni-P can induce stability during plating. A survey of the literature shows that gluconate electrolytes have been used to electroplate metals such as nickel, copper, tin and zinc, but not by electroless means. The objective of this work is to obtain Ni-P-alumina and Ni-P-titania composites from alkaline gluconate baths, studying the dependence of coating characteristics on several electroless plating variables. This work also characterizes the coatings and examines the coating hardness and corrosion resistance.

The full paper on this work can be accessed at: short.pfonline.com/NASF12Feb1

Edited by Jim Lindsay, NASF Technical Editor

Stripping Metallic Coatings

Frank Altmayer, MSF, AESF Fellow; Consultant, SA, Ltd., Riverside, Ill.

Stripping of electrodeposited and flame-sprayed coatings (along with organic coatings such as paints and lacquers) is a necessary part of surface finishing. It may be required to allow for the replating of a part rejected due to defective finishing or as part of rework processes. Aerospace facilities conduct stripping to facilitate inspection of parts or to allow for refinish with a more effective coating.

This article discusses several types of stripping methods. Chemical immersion stripping can strip complicated shapes. Electrochemical stripping is employed when immersion solutions are ineffective, unavailable or too difficult to use. Mechanical methods are used when the part shape makes the application of abrasive methods impractical.

Hydrogen embrittlement is also discussed, because many parts requiring stripping, including many high strength regular and stainless steels, may be sensitive to hydrogen embrittlement. Other issues discussed in this paper include preparation and operating issues, avoiding attack of the base metal during stripping, and the subsequent replating of stripped parts.

The full paper on this work can be accessed at: short.pfonline.com/NASF12Feb2.

NASF Training & Courses

Offered by the AESF Foundation

In-Person Courses

Airline & Aerospace Finishing		Boston, MA
Part 1	April 16 – 17	
Part 2	April 18 – 19	
Electroplating & Surface Finishing		Las Vegas, NV
Part 1	June 11 – 12	
Part 2	June 13 – 14	
Environmental Stewardship		Las Vegas, NV
Wastewater Treatment	June 11 – 12	
Pollution Prevention	June 13 – 14	
Chrome Plating for Engineering Apps.	Oct. 15 – 16	Cleveland, OH
Corrosion & Salt Spray	Nov. 5 – 6	Phoenix, AZ

Contact Luke Zorich at lzorich@nasf.org to register.

Web-Based Courses

Just the Basics (Intro to Electroplating for New Hires)	February 7, 14, 21, 28
Four 2-hour Sessions	
Electroplating & Surface Finishing – Part 1	March 7, 13, 14, 20, 21, 27, 28
Eight 2-hour Sessions	
Electroless Deposition	May 1, 2, 8, 9, 15, 16, 22, 23
Eight 2-hour Sessions	
Industrial & Precious Metals Plating	Aug. 6, 7, 13, 14, 20, 21, 27, 28
Eight 2-hour Sessions	
Electroplating & Surface Finishing – Part 2	Sept. 4, 5, 11, 12, 18, 19, 25, 26
Eight 2-hour Sessions	
Zinc, Zinc-Alloy Plating	Dec. 10, 11, 12, 13, 14, 17, 18, 19
Eight 2-hour Sessions	

Contact Luke Zorich at lzorich@nasf.org to register.