CFCM

CANADIAN FINISHING & COATINGS MANUFACTURING MAGAZINE

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IN THE NEWS

Aquarium is a big deal for The Blastman

By Sandy Anderson

Toronto Ontario is one year away from getting 1.5 million gallons of water and thousands of fish. No they are not topping up lake Ontario, they are working on Ripley's Aquarium of Canada, a $130 million Ripley's Entertainment Inc. tourist attraction set to open during the summer of 2013 at the base of CN Tower.

This massive construction project was great news for The Blastman Coatings Ltd. located in Brampton, ON. They bid on and were awarded the job of blast cleaning and protective coating and preparing the metal beams and girders to be used in the project.

Blastman is a family business run by Ernie De Angelis and his son Adam. Ernie has over 25 years of experience in abrasive blasting and protecting coating applications. Adam has been involved for five years.

The Ripley's project for them incorporates 530 tons of steel and should

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Photo courtesy of Ripley's Canada

ALSO IN THIS ISSUE

AND MUCH MORE!

Chrome Plating Replacements for Engineering Applications

350mm 9-layer FlexSTACK SCD

By Joe Pasquarelli

Those in the finishing industry recognize that there is a lot of pressure to eliminate the use of hexavalent chrome. Ever tightening employee safety, air emission, disposal regulations and wastewater controls add to costs while the market is very price sensitive. Compliance and maintenance costs have become a major cost component that is largely fixed, regardless of volume produced. This, in turn, adds to the risk of running a business. On the other hand, there still exists a market for hard chrome. Design engineers are looking for alternatives but none has come forward as a drop-in replacement for

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IN THE NEWS

Association News

CPCA Annual Conference and AGM

The Canadian Paint and Coating Association (CPCA) is having its Annual Conference and General Meeting, Saturday, September 15, 2012 in Vancouver, BC, starting at 1:00 pm and finishing on – Monday, September 17, 2012 at 4:30 pm.

The new conference format includes Technical Committee Meetings on Sunday. This will provide an opportunity for the committees to meet to discuss current issues of the day and network with other industry colleagues.

Monday's business program will include presenters addressing key national and international issues faced by the paint and coatings sector. These sessions will also include updates on important public policy and egulatory issues related to all three levels of government.

The social program will include several networking opportunities including the Chair's Gala on Sunday evening.

Full program and registration details will be available soon.

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A Penny for Your **Thoughts**

One thing that has been giving me some nostalgia of late…the Canadian Mint stamped the last Canadian penny May 4, 2012. As finishers and platers and anodizers are faced with the high costs of copper alloys and certain metals, the government is as well, hence the decision to change the face of history. Personally, I never really believed they would do it. I simply cannot imagine my life with out a penny in it. What will people pay for your thoughts now? A nickel? There are cost issues with nickel alloy too and there is speculation that the 5 cent coin's days are also numbered.

Finance Minister Jim Flaherty announced the penny drop in March and was there at the final stamp. He calls the penny, "a currency without any currency."

The one-cent coin costs 1.6 cents to produce. A Senate committee held hearings on the penny in two years ago and apparently did not find a person or group who wanted to keep it. It costs businesses and charities more to roll and transport pennies than they are worth.

Canada has had pennies since 1858 and the first to be minted here were in 1908. In 1976, the Royal Canadian Mint opened its Winnipeg plant and all coin production, including the penny, was moved there. In 2010, 486 million pennies were produced.

A penny is made of 94 per cent steel, 1.5 per cent nickel and 4.5 per cent copper-plating or copper-plated zinc.

The Mint will continue distributing pennies until Fall 2012. They will continue to be legal tender indefinitely, so people can keep using them. Credit card and debit card transactions will still be calculated to the penny.

In situations where pennies are not available, retailers are asked to fairly round after-tax prices to the nearest five- or 10-cent mark.

Businesses are encouraged to still accept pennies and do not need to update their cash registers, because prices will still be set in one-cent increments. I am interested to see how this all plays out.

Here is a photo of me outstanding in my field again. This time I am visiting The Blastman Coatings Ltd. in Brampton, ON with Ernie and Adam de Angelis who are telling me about their involvement in the huge Ripley's Aquarium Canada project. That story is featured in this issue.

Our next issue is our Annual Buyers Guide. Please get to our website and update your listing or add a new one if this is your first time. You must update your listing for it to be included. Even if there are no changes. If you were listed last year you will have received an email reminder. Please log into the online site and go through the motions so that we know you have looked at it. http://www.cfcm.mercuryemail.com/ If you are a supplier to Canadian Paint, Ink, Adhesive and Coating Manufacturers and Industrial Finishers, you need to be in this Buyers Guide. Listings are free. Web links in the data base will be live at no extra charge. Deadline to get your listing in is June 25. It is all done online and whatever appears in our online version is what appears in the July/August 2012 Annual CFCM Buyer's Guide. This issue is our only one of the year that is in the Journal size: 8-1/8 x 10-7/8 and is printed on heavy paper with an extra heavy UV Coated cover for durability.

Please contact me if you have any problems.
Sandra.anderson@cfcm.ca

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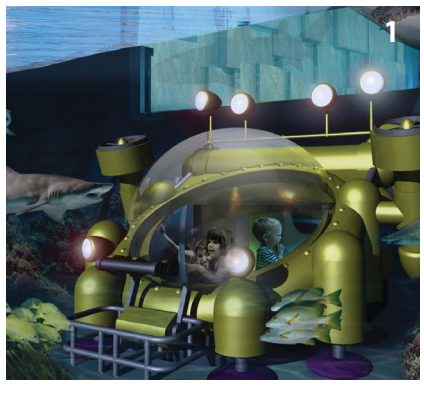

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SIBO, Quebec's Woodworking Show, Returns This Fall

Quebec's premier industrial woodworking event, Salon Industriel du Bois Ouvré, will be held October 18-19, 2012 at Forzani Place in Laval.

SIBO 2012 will offer the largest gathering place for Quebec woodworking professionals to connect with each other and with key manufacturers and suppliers of equipment, computer software, hardware, raw materials and more.

The biennial event is being organized by Vance Communications Canada following the successful Woodworking Machinery & Supply Expo (WMS) in Toronto. SIBO 2008 attracted more than 4,600 woodworking professionals and industry suppliers.

"It's been a long four years since SIBO was last held and we're excited that the Quebec economy and wood products industry has responded with such a strong comeback," said Steve Reiss, vice president of Vance Communications Canada. "We're bringing SIBO back to Forzani Place in Laval, site of the 2008 show, because it is close to downtown Montreal and its airport for servicing out-of-town attendees and exhibitors but without the traffic headaches of being downtown."

A new website, www.sibo.ca, is being developed for SIBO. It will include regularly updated news, exhibitor products, photos and registration information.

Company News

Gema Joins Graco

Gema, a global leader in powder coating equipment, begins a new chapter in its business history. Gema began operating as a new business unit of the Graco Corporation effective April 2, 2012.

"The addition of the Gema Powder Finishing business to Graco's existing finishing operations is highly strategic and complementary" said Patrick J. McHale, Graco's President and Chief Executive Officer. "It allows the Company access to attractive end markets; the global distribution base of Gema is strong and growing; the emerging market exposure is highly attractive; and the brand name is well established with end users as a high quality, technological leader."

"This is going to be an extraordinarily exciting time for all of us as we work to make our successful business even better." states Claudio Merengo, Gema Group President. "This change in our corporate ownership will enhance our ability to provide high quality products and continued excellent service."

Gema will operate as a separate business unit and customers and industry partners will see no change in how the company conducts business. Gema will continue to manufacture and deliver its products and support to their worldwide distributors and customers, and continue to advance innovation projects, with the same team of dedicated and experienced managers and employees.

Over the next several months a transition will occur as marketing, promotional, and product materials are integrated with the new company name, Gema.

Gema is a worldwide leader of powder coating equipment and systems. From manual units to fully automated systems, Gema offers solutions to satisfy customers in a wide variety of end markets. Gema has worldwide headquarters in St. Gallen, Switzerland and a broad worldwide distribution network. North American headquarters are located in Indianapolis, Indiana. www.gemapowdercoating.com.

Graco Inc. supplies technology and expertise for the management of fluids in both industrial and commercial applications. It designs, manufactures and markets systems and equipment to move, measure, control, dispense and spray fluid materials. A recognized leader in its specialties, Minneapolis-based Graco serves customers around the world in the manufacturing, processing, construction and maintenance industries. www.graco.com.

Disputed Graco-ITW Deal Moves Forward

Reversing course, the Federal Trade Commission has green-lighted Graco's controversial takeover of ITW Finishing LLC—with one big regulatory but.

The FTC has said it would allow Graco to close the $650 million deal, and Graco set closing for April 2012.

Graco owns the ITW businesses, but the Binks, DeVilbiss, Ransburg and BGK Curing Technology brands will be operated independently while the federal antitrust review continues.

However, the takeover allows Graco only to take immediate, full control of Gema, ITW's powder finishing business.

For now, the lion's share of the business—leading brands Binks, DeVilbiss, Ransburg and BGK Curing Technology, which all serve the liquid finishing industry—will be kept from Graco's direct control.

The FTC ordered that the liquid finishing businesses be "held separate" and "run independently of—and in competition with—Graco until the FTC determines the divestitures necessary to prevent competitive harm from the acquisition."

Graco, a leader in the $2 billion global spray equipment market, announced its plan last year to purchase No. 2 ITW from Illinois Tool Works Inc. ITW's finishing businesses reported $375 million in sales in 2011, according to Graco.

In December, however, the FTC filed a challenge to the $650 million deal on antitrust grounds, saying that the spray giant's takeover of its chief rival would create a monopoly that would hurt the North American finishing and manufacturing markets. The United States is the world's largest market for paint spray equipment.

FTC's surprise announcement included both an administrative complaint and a threat to back it with a federal-court restraining order and injunction.

The FTC particularly noted potential harm to spray equipment distributors.

Graco is still facing an antitrust lawsuit from another competitor, Polyurethane Machinery Corp., of Lakewood, NJ. The manufacturer of urethane spray and pour equipment has been pressing antitrust claims against Graco since 2008 in U.S. District Court in New Jersey.

Becker Industrial Coatings gains ISO 17025 accreditation on Solar Reflectance

The UK-based, Long Term Development Group of Becker Industrial Coatings has become one of the first laboratories in the world to gain ISO 17025 (General Requirements for the Competence of Calibration and Testing Laboratories) for the testing of solar reflectance and other thermal properties of coatings and painted surfaces according to the ASTM Methods; E 903, C 1371 and E 1980.

The ISO 17025 accreditation enables Becker to offer its customers (and other interested parties) a fully traceable and externally audited testing facility for the measurement of these radiative and thermal properties. The accreditation to ISO/IEC 17025 is provided by the United Kingdom Accreditation Service; the sole national accreditation body recognised by the British Government.

The determination of the radiative and thermal properties of construction materials such as painted metal cladding and roofing is becoming more important as global awareness increases about the part that radiative properties play in helping reduce urban heat island effects and |offset the use of CO2 generating cooling and heating systems.

"This achievement is an example of the results of our global strategy to strengthen our R&D efforts and to find the best solution for our customers" says Chief Executive Officer Dr. Boris Gorella. Dr. Karsten Eller, Chief Operating Officer adds, "This approval demonstrates Becker's ongoing commitment to sustainable products and demon-

strates our ability to meet world class standards in our R&D efforts."

Internationally recognised, sustainability rating schemes such as the LEED (Leadership in Energy and Environmental Design) program require these properties to be considered during the design process. Moreover, both the US Energy Star program and the European Energy Performance Buildings Directive 2010/31/EU, recognize the importance of passive cooling technologies and the need for improved thermal performance of building envelopes.

BASF Phasing Out Lead Chromate Pigments

BASF, one of the world's largest pigment suppliers, has announced that it will stop making lead chromate pigments by the end of 2014 and concentrate on developing and producing alternative products.

The pigments, for the yellow and red color ranges, include those sold under the brand names Sicopal, Sicotan, Paliotan, T-Shade, Paliotol, Paliogen, Cromophtal, Irgalite, Cinquasia and Irgazin.

The company says many alternatives are already available, but the coatings industry has resisted using them, since no "100 per cent substitution" exists for lead-containing pigments.

BASF says it will assist its customers with the change-over, such as helping them plan their exit strategy, agree on the quantities that are to be phased out and the technical changeover.

Long favored for their weather fastness, color strength and corrosion inhibiting properties, chromate pigments are one of BASF's oldest product groups. However, chromate pigments are becoming more tightly controlled worldwide. In Europe, chromic acid, most of the chromates used for chromate conversion and chromated primers are all being targeted by new REACH regulations for limited usage as of May 2015.

In the U.S., federal laws already control the use of hexavalent chromium and trivalent chromium compounds.

BASF produces lead chromate pigments exclusively at its site in Besigheim, Germany. That will become the site for future development and production of pigment alternatives.

General Motors Names BASF as 2011 Supplier of the Year

For the eighth time in 10 years, BASF has received General Motors' Supplier of the Year Award.

BASF's Coatings Division supports GM by combining modern paint processes with special effect pigments and technologies. BASF offers a broad array of color solutions and development capabilities that help carmakers improve productivity and environmental performance.

For example, BASF recently introduced the environmentally friendly CathoGuard 800 and 900 product line – a Cathodic e-coating system that provides the base for perfect automotive surfaces and protects edges and cavities from corrosion.

PPG and Canada's Argex Announce TiO_2 Pigment Development Agreement

PPG Industries Inc. announced a technical-collaboration agreement with Montreal-based Argex Mining Inc. to develop titanium dioxide (TiO_2) pigments for use in paint and coatings products.

Argex is a producer of mineral products and owns a titanium ore deposit in Canada.

Terms of the deal were not disclosed.

The agreement provides for the negotiation of a purchase and supply agreement between Argex and PPG. Both companies have agreed to certain terms of mutual exclusivity during the negotiation period.

PPG previously manufactured TiO_2 using the chloride process at its Natrium, W.Va., chemicals plant and sold TiO_2 pigment for coatings and other end-use applications.

PPG announced a "strategic initiative" in late 2011, to address global supply issues related to TiO_2 pigments, a key component of the paint and coatings raw-materials supply chain and a major contributor to cost pressures that have cut into profits of coatings manufacturers.

Manufacturers have had to sharply increase TiO2 prices over the past two years as global demand and economic activity has risen.

PPG is not alone among major paint and coatings companies in pursuing strategies to address the TiO_2 supply situation. AkzoNobel announced a partnership with Guangxi CAVA Titanium Industry Co. Ltd. of China to build a new TiO_2 plant in Quinhou, China. The 100,000-ton-per-year plant is expected to begin operation in early 2014.

The majority of global TiO_2 manufacturing capacity is held by a handful of major companies, including DuPont, Cristal Global, Huntsman Tioxide, Kronos, Tronox, and Sachtleben. Production was scaled back following the financial crisis and recession in 2008, but demand has grown significantly over the past two years according to market reports on the TiO_2 industry.

Argex Mining feels the agreement with PPG further validates the process and the suitability of the Argex TiO_2 pigment for commercial use. PPG's involvement will assist Argex greatly in its stated goal to advance rapidly to production.

Argex mining is a producer of titanium dioxide, iron and vanadium pentoxide. The company has adopted a simple low-risk strategy that allows it to produce high-purity TiO_2 directly from run-of-mine material from its 100 per cent-owned deposit."

The process is running continuously at a mini-plant in Mississauga, Ontario. The company said the closed-loop process is environmentally friendly and produces minimal inert tailings.

Argex also owns 100 per cent of the Mouchalagane site, a large Labrador Trough iron-ore property.

Equity Firm Acquires Plasticolors, Evonik's Colortrend, Forms Chromaflo Technologies

Arsenal Capital Partners has announced the concurrent acquisition of Plasticolors Inc. and Evonik Industries' Colortrend global colorants business, which will be combined to create Chromaflo Technologies, described by Arsenal Capital as "the largest independent global pigment dispersion platform."

Headquartered in Ashtabula, Ohio, Plasticolors was founded in 1970 and is a major supplier of pigment and chemical dispersions for the thermoset composites and paint and coatings industries. Arsenal Capital, in March 2012, announced the pending acquisition of Evonik's Colortrend global colorants business.

Chromaflo Technologies will be based in Ashtabula and will operate production facilities in the U.S., Canada, The Netherlands, and Australia. The company's operations include sales and technical capabilities throughout North and South America, Europe, Australia, China, Malaysia, and India.

Brookfield Engineering Presents: The ABC's of Viscosity Measurement

Brookfield, the world standard for viscosity measurement and control, offers two hands-on courses that equip users of Brookfield instruments with the knowledge to get the most out of their viscosity test methods. These one-day training sessions are presented in easy-to-understand terms that give attendees the working know-how to verify and improve upon the data required for meaningful R&D and successful QC testing.

The courses are offered at Brookfield's headquarters in Middleboro, MA., and at major metropolitan areas across the United States. Arrangements can also be made to conduct courses at customers' facilities where content can be adapted to their specific product applications.

Practical Course On Viscosity Measurements provides attendees with the tools and concepts they need to make the most precise viscosity measurements possible. The course is designed to benefit all operators from beginner to advanced. Participants are encouraged to bring product samples for testing where hands-on time is provided in a relaxed laboratory environment.

Applied Course On Viscosity Test Methods is designed for the intermediate to advanced Brookfield Instrumentation user in R&D, Analytical, and Process Engineering functions. Focusing on test methods and techniques, it will review and discuss how Brookfield rotational viscometers and rheometers can be used to provide meaningful product analysis.

The Practical Course on Texture Testing and Analysis features Brookfield's CT3 Texture Analyzer/Tester, an instrument designed to help manufacturers deliver consistent products. The course provides attendees with the technical training they need to get the maximum value out of their CT3 Texture Analyzer.

Hands-on exercises provide attendees with techniques, methods and valuable industry know-how. Principles of texture analysis, correlation to sensory perception, texture instrumentation & accessories and an introduction to TexturePro software are all included. Attendees are encouraged to bring product samples for testing and discussion.

www.brookfieldengineering.com

Plasticolors CEO Scott Becker was named CEO of Chromaflo Technologies.
www.arsenalcapital.com.

Enthone Acquires Select Assets of A Brite Company

Enthone Inc., a business of Cookson Electronics, announced it has acquired select, intellectual property and other assets of A Brite Company headquartered in Garland, Texas, USA. The asset acquisition and synergism strengthens Enthone's and A Brite Company's global technology portfolios, while substantially expanding both companies' market presence throughout the southern United States and Mexico.

Terrence Copeland, Vice President - Enthone Americas said, "This transaction is an excellent strategic fit as we continue to extend our direct sales team throughout North America and increase our growing footprint in the building hardware industry. It also provides an enabling pathway to introduce innovative and cost -effective technology solutions for a wide range of markets and applications worldwide."

Frank Dunigan, Owner and Chief Executive Officer of A Brite said, "Terry Copeland and his team have proven to be valued partners that both the A Brite Family and our customers can trust and rely upon. All A Brite team members impacted by the agreement have now joined the Enthone Family to ensure a seamless transition for our valued customers." A Brite will continue to do business as A Brite and as an Enthone distributor.

The asset acquisition reinforces Enthone's commitment to the North American market and further bolsters the company's recent additions of direct sales and technical service personnel hired over the last twelve months. The agreement, signed on March 1, 2012, also includes mutually beneficial support opportunities for both companies.

Incorporation of the acquired A Brite intellectual property assets and personnel into the Enthone commercial and technical organizations is presently underway. A Brite customers will continue utilizing their current points of contact in what is being termed a "no-stress" agreement that enables customers to benefit from the combined synergies of both companies.

Arkema Announces Sale of Peninsula Polymers Unit to Management-Led Group

Arkema Coating Resins, a business unit of Arkema, has announced the sale of the Peninsula Polymers business, a national distributor of coatings raw materials headquartered in North Kansas City, MO. The business has been purchased by an investment group led by the current management team; terms of the sale were not disclosed.

The distributor was acquired by Arkema Inc. as part of the purchase of the coating resins business of Cook Composites and Polymers in 2011. Peninsula Polymers will continue to represent certain Arkema Coating Resins lines in North America.

"We are pleased to announce the sale has been closed, and that Peninsula Polymers will continue to distribute our products," said Richard D. Jenkins, global group president for Arkema Coating Resins. "We believe that the change of ownership will be smooth and seamless, and is in the best long term interest of our customers now being served by Peninsula Polymers."

Therma-Tron-X New Website

Therma-Tron-X, Inc. has just launched a new website that went live in April, 2012. It will soon offer access to a bilingual website, in English and Spanish.

The launch of the new, modern website, which offers quick and easy access to essential information on TTX Finishing Systems, TTX Environmental systems, Coating Technologies and TTX's company profile, is part of the company's ongoing efforts to enhance the quality and availability of information on Therma-Tron-X's capabilities to customers worldwide.

The website offers features such as valuable system information, organized into benefits, applications and cost effectiveness categories, downloadable brochures, cut sheets and publications from TTX, photo galleries, up to date news from TTX and the finishing industry and easy to use service and sales forms.
www.Therma-tron-x.com or www.ttxinc.com

Pricing Updates

Arkema Coating Resins Announces Price Increase for Solventborne and Powder Products in North America

Effective March 15, 2012 and as contracts allow, Arkema Coating Resins increased pricing on all solventborne and powder coating resins sold in North America. Chempol acrylics, alkyds, polyesters, and oils will increase by $0.06 to $0.12 per pound. Reafree polyester powder resins will increase by $0.06 to $0.08 per pound.

The company says this action is necessary due to escalation in the cost of raw materials and transportation for solventborne and powder products.

Customers should contact their Arkema Coating Resins account representative for additional details.

Troy Corporation Announces Price Increase

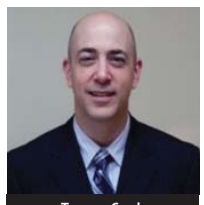
Effective May 1, 2012 and as contracts allow, Troy Corporation increased global prices for Polyphase and other dry film preservatives, Mergal wet state preservatives and additives up to 15 per cent. This price increase is due to increases in the cost of key raw materials, global regulatory support, energy, transportation and labor.

Troy Corporation continues significant investments to provide customers with added value through innovative products, technical service, full regulatory compliance, coupled with a strong global infrastructure to ensure reliable supply. Customers interested in learning more about the price increase should contact their local Troy Corporation sales representative.

People

New at Dempsey

Trevor Cook has joined Dempsey Corporation's Industrial Sales team as of May 1st 2012 in the capacity of Marketing Manager – Coatings and Inks.

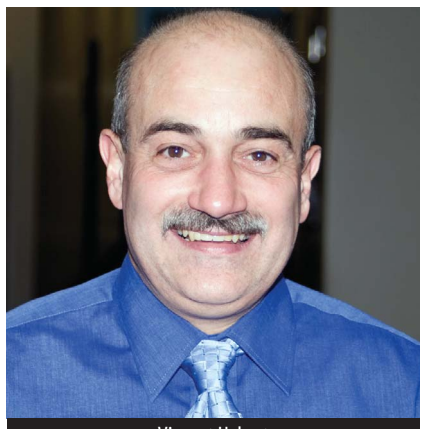

Trevor Cook

Cook has a technical background, received his BSc. From McMaster University and was an Ink formulator for 6 years with Flint Ink, Sicpa and Siegwerk. During the last 10 years he was with Inortech Chemie.

His immediate duties will include a sales portfolio focusing on the Graphic Arts and Coatings customers. He will in the future also have addi-

tional marketing responsibilities. His contact information is: trevor@dempseycorporation.com

Brookfield Names Hebert to Product Manager - Powder Flow Tester


Vincent Hebert

Brookfield Engineering Laboratories has appointed Vincent Hebert to the position of Product Manager - Powder Flow Tester (PFT). Hebert will assume responsibility for sales of the PFT in the Americas and will coordinate worldwide sales with Brookfield's international offices.

Hebert has been the lead sales engineering specialist for launch of the new Powder Flow Tester. Since joining Brookfield Engineering in 2007, he has also managed all educational seminars and since November 2009, training programs for Brookfield.

He has over 25 years of experience in product testing, marketing, technical support and sales. Prior to joining Brookfield, Hebert was employed at Measurement Computing Corp. in Norton, MA. He is a graduate of Roger Williams University with a degree in Electrical Engineering.

Enthone Appoints Sean Mirshafiei Vice President, Global PWB Marketing

Sean Mirshafiei has been appointed Vice President, Global PWB Marketing by Enthone Inc.

During his more than fifteen years in the PWB industry, Mirshafiei has held positions of increasing responsibility in engineering, marketing and business development with Allied Signal, Isola Group, and most recently Rogers Corporation. Mirshafiei joins Enthone with extensive experience developing marketing strategies and business opportunities with OEMs, fabricators and assemblers throughout the world.

Mirshafiei earned a master's of business administration degree with an emphasis in finance and marketing from the University of Southern California. He also holds a bachelor's degree in chemical engineering from California State Polytechnic University - Pomona.

Mirshafiei is an active member of IPC. He will be based out of the Enthone corporate headquarters in Connecticut, USA.

New leadership at Cefla Finishing Group

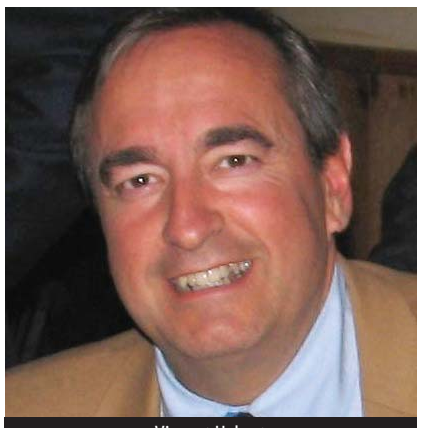
As of April, Riccardo Quattrini has taken over Management of Cefla Finishing Group, succeeding Roberto Scala, who led the group for more than a decade, contributing significantly to its development and global market leadership.

Quattrini has vast experience in the field of woodworking machinery and was previously Cefla Finishing Group Sales & Marketing Director.

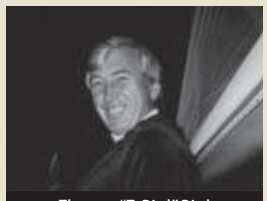
Quattrini takes the management of the company with the goal of ensuring and further strengthening the stability of the Division, besides guiding the Group towards a new dimension of growth, pursuing a strong strategic vision and dealing with the now unpredictable and constant changing of the international markets.

He's Back!

Long time coatings veteran Norman Guindon has returned to the industry as CO and partner at coatings manufacturer CanLak Inc., Daveluyville, QC.


Vincent Hebert

Obituary: Thomas "T-Bird" Bird (1930 - 2012)


Thomas "T-Bird" Bird

The industry will miss Thomas "T-Bird" Bird, 1930 – 2012, formerly of T-Bird Enterprises who passed away on Thursday, March 22, 2012 from Alzheimer's Disease. Survived by his partner Dorothy Warr (nee Serviss) and his sons Brian (Deborah, nee Cameron) Bird and Bruce (Laura Alexander) Bird. Loving Papa to Shayla and Ethan. Predeceased by his parents Tom and Agnes Bird and his first wife Joyce (nee Webb).

He was a longtime employee of PPG Enterprises beginning there as a technician in the paint labs. He then moved to Western Solvents as a Salesman and when Western was purchased by the American company Chemcentral, Bird eventually became President of Chemcentral in Toronto. Chemcentral was then purchased by Canada Colors & Chemicals (CCC). Bird stayed with CCC for several years before moving to Nuodex in Brampton. He later left Nuodex and started his own Business, T-Bird Enterprises. Bird was involved for many years with the Faustina Hockey Club and the Etobicoke Old-Timers Hockey Club. He also enjoyed many years of golf at the Brampton Golf Club and was also a past member of the Port Credit Yacht Club. The family would like to extend heartfelt thanks to the staff at Sheridan Villa, especially Spruce Lane, for their care and support. Tom will be greatly missed by his family and friends. Services were held March 28, 2012, in Oakville, ON. Donations in lieu of flowers were made to the Canadian Cancer Society or the Alzheimer Society.

GLOBALLY HARMONIZED SYSTEM (GHS),

the new US Hazard Communication Standard

By Dave Saucier

This is the first of 2 articles that will be published regarding GHS. This first covers the US implementation and some of the challenges industry will have. The September issue of CFCM will cover the Canada version along with a gap analysis on the differences that will have to be managed.

The United Nations Globally Harmonized System (GHS) received clearance from the US Office of Budget and Management (OMB) recently paving the way for the US Department of Labor - Occupational Health and Safety Administration (OSHA) to replace the current Hazard Communication System (HCS), first promulgated in 1983, with GHS.

OSHA has determined that the modifications will significantly reduce costs and burdens while also improving the quality and consistency of information provided to employers and employees regarding chemical hazards and associated protective measures. Consistent with the requirements of Executive Order 13563, which calls for assessment and, where appropriate, modification and improvement of existing rules, OSHA has concluded this improved information will enhance the effectiveness of the HCS by ensuring that employees are apprised of the chemical hazards to which they may be exposed, and in reducing the incidence of chemical related occupational illnesses and injuries.

DATE	REQUIREMENT	WHO
May 25, 2012	Begin transition period	Manufacturers, Importers, Distributors, Employees
June 1, 2013	Train employees on new label elements and SDS format	Employers
June 1, 2015	Compliance with all modified provisions of the Final Rule	Manufacturers, Importers, Distributors, Employers
December 1, 2015	The distributor shall not ship any containers labelled by manufacturers or importers unless it is GHS labelled	Manufacturers, Importers, Distributors, Employers
June 1, 2016	Update compliance programs as necessary, provide additional employee training for newly identified physical or health hazards	Employers

The modifications to the standard include revised criteria for classification of chemical hazards; revised labelling provisions that include requirements for use of standardized signal words, pictograms, hazard statements, and precautionary statements; a specified format for safety data sheets; and related revisions to definitions of terms used in the standard, and requirements for employee training on labels and safety data sheets. OSHA is also modifying provisions of other standards, including standards for flammable and combustible liquids, process safety management, and most substance-specific health standards, to ensure consistency with the modified HCS requirements. The consequences of these modifications will be to improve safety, to facilitate global harmonization of standards, and to produce hundreds of millions of dollars in annual savings. Here is an implementation table:

GHS has been implemented in various countries around the world; both Canada and the US have lagged behind with the necessary rule making to begin the transition. The new secure borders initiative that includes significantly more harmonization of regulations will get tested by how quickly and closely Canada follows the US GHS regulations. Also Canada has the new Red Tape Reduction in play that requires that a "one-for-one" exchange for regulatory reduction to reduce burden on industry.

Regardless, GHS has profound effect on the entire coatings industry. There are going to be challenges to be met servicing a NAFTA region with 3 official languages (English, Spanish and French). The transition phase from the current Hazard Communication Standard, which I always called OSHA Worker Right To Know, begins in May 2012. All employers must ensure that their employees are trained, products are properly labeled and the new Safety Data Sheet (SDS) format is in use by June 1, 2013. That's just slightly over a year to complete the tremendous task.

Challenge # 1, Mexico has adopted GHS on a voluntary basis; Canada yet to put in place the necessary Gazette Notice with stakeholder consultations an 18-24 month process typically

Challenge # 2, begin the relabelling of all products; re-writing of current Material Safety Data Sheets (MSDS) to the new SDS format which has gaps to be filled; develop and facilitate training programs.

Challenge # 3, paint and raw materials produced in the US or offshore for the Canadian market will need to maintain current Workplace Hazardous Materials Information System (WHMIS) labelling and MSDS formats, and vice-versa, so we'll the potential for dual or triple safety labelling.

Challenge # 4, the $ cost. The Federal Registry states the following:" The consequences of these modifications will be to improve safety, to facilitate global harmonization of standards, and to produce hundreds of millions of dollars in annual savings." Regrettably, the savings won't start until the paint and coatings manufacturers and their supply chain partners pay for the cost of implementing GHS. For the multi-national corporations this is indeed a blessing and will result in substantial savings over the long term, without a doubt. For the small regional manufacturers and raw material suppliers it remains to be seen where any savings will be gained in the mid to long term.

Challenge # 5, the timeline. Many pundits thought that the US would shelve GHS while it was in the OMB because this is election year. Not so. The transition time is exceedingly rapid, despite the fact that we've been talking ourselves to sleep about GHS for the past decade.

I started the first edition of 2012 with a simple suggestion to "brace yourselves" for a very busy regulatory year, and that article mentioned GHS only as an afterthought. If you feel punch-drunk about now and we're not even half way through the year, no will blame you. Good news is that you're not alone; we are all affected by these regulations. Working within your the various associations that stakeholders are members of will go a long way to sharing the pain and hopefully some of the costs. Next issue will cover where Canada is with GHS and just how harmonized the end results will be. ■

Dave Saucier is Vice President, HDTS Chemicals Inc. www.hdtschemicals.com

Canadian Paint and Coatings Association (CPCA) News

New Three-year Strategic Plan: CPCA's Board of Directors held a strategic planning session in Toronto at the end of March to develop a new three-year strategic plan. The plan will take the Association to the next level of engagement with members and stakeholders. There are many issues to be addressed by the Association both from a legislative and regulatory perspective as well as with the many challenges on the economic front. With a renewed focus on strategic initiatives Association members can be assured that their interests will continue to get the focus and attention it deserves.

Website Renewal: CPCA is now in the process of renewing its website with respect to content and function. There will also be a more functional 'Members Only' section to further facilitate dialogue among members, especially amongst the Technical Committees that remain the backbone of the Association. The Programs and Services offered by the Association are being updated and realigned to ensure that we are meeting member needs. This comes on the heels of a comprehensive Membership Survey concluded in March, which provided important feedback to the Board and management on the way forward.

Product Stewardship Committee: CPCA's Technical Committees continues to be very active with a special meeting of the Committee in March to discuss the renewal of the approach used by Stewardship Ontario, necessitated by the amendment to the Waste Diversion Act by the Minister of Environment on February 9, 2012. There continues to be a number of issues related to stewardship across Canada that continues to be a focus of the Association.

Paint and Coatings Working Group: On April 17, 2012, CPCA members were given the opportunity to provide direct input to Government regulatory and policy advisors about the development of many

CMP risk assessment and risk management initiatives such as the Polymer Approach; the Next Phase of the Domestic Substances

List Inventory Update (DSL IU); the Petroleum Sector Stream 4; the CMP-2 Substances Groupings and Sub-groupings; the Challenge and Non-challenge substances; as well as EC's new Emissions Profiles approach for CMP-2 Substances. The Government also gave CPCA members an update on the "cooperation stage" of the CMP with other related U.S. initiatives and more information on the scope of the Regulatory Cooperation Council (RCC) initiatives. A more complete coverage and follow-up of this meeting will be presented in the May issue of the What's New newsletter available to members.

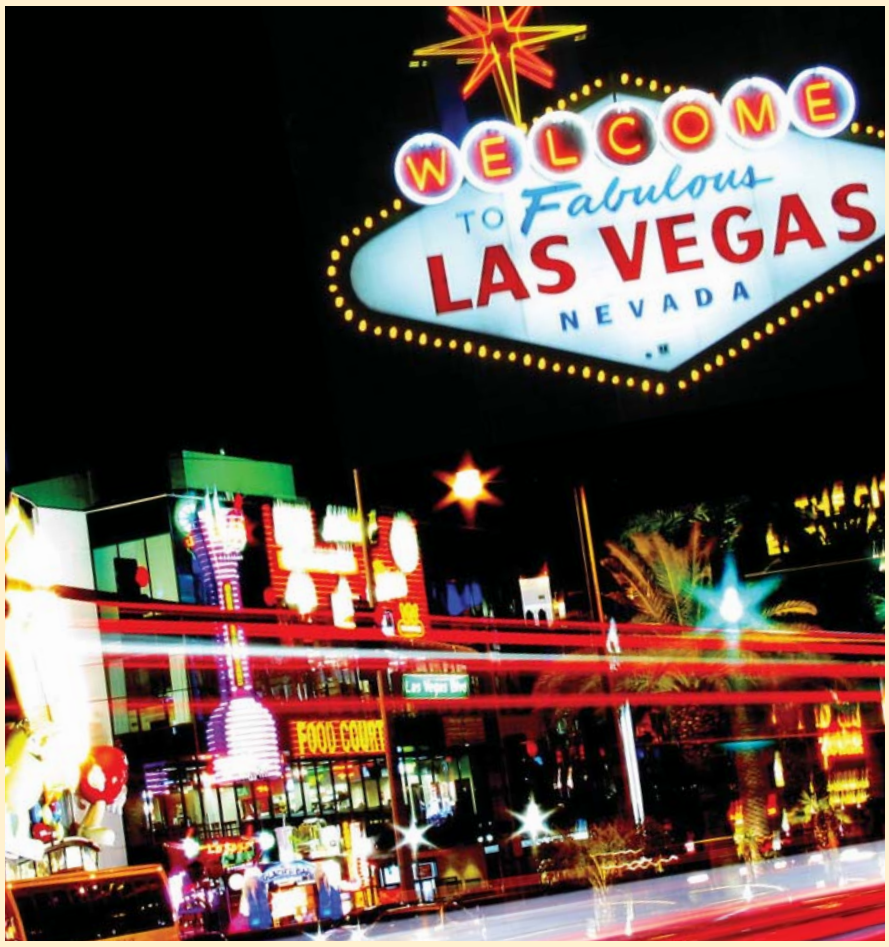
Subcommittee of Health and Safety Committee on Aerosols: The record of the public consultation meeting on the proposed control instrument for Establishing Volatile Organic Compounds (VOCs) Reactivity Limits in Aerosol Coatings was made available by Environment Canada in early April and posted in the "Member's Only" section of the CPCA website. The document provides information on the pros and cons of four risk management instruments that were discussed: Performance standard (regulation or guidelines), P2 Plan, Environmental Performance Agreement, and Status Quo. CPCA is currently developing comments and seeking further input from members to help inform the regulatory process.

Both Environment Canada and Health Canada highlighted the advantages of an early CMP-2 collaboration for industrial working groups. During First Quarter, 2012 and in response to a specific request from Environment Canada/Health Canada, the CPCA PCWG compiled early information on the current uses of MDI/MDA and cobalt compounds by the paint sector. By submitting this early sectoral information via specific EC/HC questionnaires, CPCA member companies involved in the PCWG will be able to avoid having to re-submit their individual company data for cobalt compounds in a more detailed and rigid format when related Section 71 notice requirements are published in the Canada Gazette. The Government called it "exemption for previously submitted data". However, CPCA members who did not provide information for year 2011 (and all CPCA non-members) remain subject to Section 71 requirements once they become effective. CPCA members (paint manufacturers and suppliers) are now taking part in the PCWG activities and returning their individual data to CPCA (or EC/HC) for future sectoral compilations.

Joint CPCA/ACA Management Information Committee: The meeting of MIC took place in Washington, D.C. at ACA Headquarters. This is an important annual effort to ensure the paint and coatings sector remains current on important industry sector statistics that is made available and of great use to all members.

GHS Implementation Status in Canada: The CPCA continues to monitor the ongoing updates on the GHS Implementation Status, including actions taken by the federal government on GHS (Globally Harmonized System), especially Health Canada's Consumer Product Safety Directorate.. In 3-6 Months a Memorandum of Understanding will be developed between U.S. OSHA and HECS/HC favouring stakeholder engagement and CPCA will continue consultation on proposed legislative amendments. Over the next 18 months the MOU will be in place with yearly stakeholder meetings with Canada and the US releasing the proposed regulations in Canada Gazette Part II, known as the Amendment of the Hazardous Products Act. This will have huge impacts on industry and CPCA is now making every effort to ensure that members are fully informed and that we have direct input into important decisions on this initiative. CPCA recently warned U.S. paint manufacturer and supplier members as well as Canadian companies exporting to the U.S. of the upcoming enforcement of the "industrial" aspects of the GHS for the Classification and Labelling of Chemicals in the U.S. and for the need to be prepared over a three-year transition period.

Annual Conference 2012 in Vancouver: CPCA's Annual Conference and AGM will be held in beautiful downtown Vancouver, September 15-17, 2012. The conference will begin with our social activities on Saturday including the Welcoming Reception. The new conference format includes Technical Committee Meetings on Sunday. This will provide an opportunity for the committees to meet to discuss current issues of the day and network with other industry colleagues. Monday will have a strong line-up for the business program including presenters addressing key national and international issues faced by the paint and coatings sector. There will also be updates on important public policy and regulatory issues related to all three levels of government.



SurFin 2012 to Hit Vegas

SUR/FIN 2012 is decending on Las Vegas, NV, June 11-13, 2012 at the South Point Hotel, Casino & Spa and will once again cover the industry's most timely and critical issues for R&D, project systems, engineering, quality, and regulatory affairs from professionals within the surface finishing industry. Attendees can expect to come with their most pressing questions and leave with the information they need to improve their products, processes and business.

Show Schedule
Tuesday, June 12: 9 AM – 5 PM
Wednesday, June 13: 9 AM – 3 PM

Conference Schedule
Monday, June 11: 1 PM – 5 PM
Tuesday, June 12:
8:00 AM – 8:50 (Keynote)
10:00 AM 12:30 PM
2:30 PM 5:30 PM
Wednesday, June 13:
8:00 AM – 9:00 AM (Keynote)
9:30 AM – 12:30 PM
2:00 PM – 5:30 PM

Networking Events
Golf Tournament–Monday 8:00 AM
1:00 PM
Opening Night Bowling Reception–Monday
6:00 PM 8:30 PM
Hoover Dam Tour–Thursday 8:00 AM
12:30 PM
Register with your Conference Registration
SUR/FIN is Presented by the National Association for Surface Finishing.
www.nasf.org

Exhibitor List (as of April 26, 2012)

A Brite Company 920
ACM Technologies 209
Accu-Labs Inc. 114
ADS Gold 203
Agmet LLC 317
American Plating Power LLC 301
AMETEK Fluoropolymer Products 424
Anomet Products 427
ASC Process Systems, Inc 727
Associated Rack Corporation 304
Asterion LLC 715
Atotech USA Inc. 709
Atum Environmental Services 104
Aucos Elekr. Geraete GmbH 915
B&P Plating 1001
Baker Technology Associates Inc. 820
Barlocker Insurance 204
Bex, Inc. 215
BKTS 220
Burke Rack, Inc. 120
Cee-Bee Aviation Products, Division of
McGean-Rohco, Inc. 205
CFCM 422
Columbia Chemical Corporation 904
Corrotec Incorporated 811
Coventya, Inc. 509
Crystal Mark Inc. 327
CST-SurTec, Inc. 514
The Dangler Guys 315
De Nora Tech, Inc. – 308 Desco, Inc. 220
DMP Corporation 420
Dynamic Software Solutions 416
Dynamix, Inc. 910
Dynapower Company 601
Dynatronix, Inc. 909
Eastern Applied Research 105
Eco-Tec Inc. 417
Elsyca 1113
Enthone Inc. 901
EPi Electrochemical Products Inc. 721
EPSI Masking Co. 1111
EQ-The Environmental Quality Company .1009
Ernst Reinhardt GmbH 825
Fanta Equipment Co. 708
Filter Pump Industries 102
Finishing Market 403
The Finishing Experts 122
Fischer Technology 405
Gerber Pumps 227
GF Piping Systems 908
Gilbert & Jones Co., Inc. 1014
Global Filtration Systems 415
Goad Company 110
Hardwood Line 117
Haviland Products Company 309
Heatbath Corporation 302
Horiba Scientific 1100
Hubbard-Hall Inc. 823
Hunter Chemical 1005
Innovative Heat Concepts 121
Integrated Technologies, Inc. 816
Jessup Engineering 703
KCH Engineered Systems 501
KC Jones Plating Co. 1010
Keronite Inc. 325
Kontek Ecology 320
Lanco Corporation 609
Liquid Analysis 822
Luster-On Products, Inc. 1108
MacDermid Inc. 500
MBA Manufacturing 1104
Met-Chem Inc. 300
Met-Pro Environmental Air Solutions 515
Met-Pro Global Pump Solutions 515
Mefiag Filter Technologies 515
Metal Chem Inc. 821
Metalurgica Lazcano S.A. de C.V. 227
METALAST International 323
Metal Finishing Magazine 1109
Metropolitan Alloys Corporation 106
Midwest Air Products Company, Inc. 611
Miles Chemical 101
Nanmat Technology 802
The Nickel Institute 103
OMG Electronic Chemicals 414
Oxford Instruments 221
PAL Surface Treatment Systems, LTD 117
Palm International, Inc. 427
Parker Boiler Co. 226
Pavco, Inc. 316
PKG Equipment Inc. 200
Plating Process Systems Inc. 109
Porex Filtration 1017
The Powder Coating Institute 426
Precision Process Inc. 425
Price Industries 305
Process Electronics Corporation 115
Process Technology 615
Products Finishing Magazine 502
PSC 1103
PSM America Inc. 201
Pyromet, Inc. 1011
Reaxis Inc. 217
Recovery Engineering 1008
Republic Metals 902
RighTech Fabrications 805
Ritchey Metals Company 1117
Ronatec .....C2C - 222
Scientific Control Laboratories, Inc. 924
ScrubAir Systems 1102
Sequoia Manufacturing 804
SERDP & ESTCP 824
Siemens Industry, Inc. 1015
SERFILCO, Ltd. 701
SIRCO Industrial, Inc. 926
Surtronics, Inc. 116
Technic Inc. 801
T&J Industries 1109
TM Deer Park Services LP 423
Thermo Scientific 326
Titan Metal Fabricators 917
Tolber Division 1110
TrueLogic Company 809
Universal Automation Systems, Inc. 1115
Univertical Corporation 1016
Viron International 214
Uyemura International Corp. 409
Walgren Company 815
Warco Inc. 1003
Water & Wastewater
Equipment Company 526
Waterstar Inc. 322
M.W. Watermark 421
Witt Liners 826
WMV Incorporated 803
World Resources Company 314
Yuken America 814
Zinex Corporation 1105

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every application. For any new technology to become accepted it must perform better than the old one at the same or a lower life-cycle cost. The new process must be stable and easily repeatable so that the business community will be willing to invest in these new coatings. I will review here some technologies that are available today as alternatives to hard chrome. Note that no one coating will replace hard chrome but that each application must be analyzed and the appropriate coating specified.

HARD CHROME

First let us look at some of the properties of hard chrome that have made it so popular. Chrome can be easily applied up to .015" thick. OEM applications are usually only .005" but in a repair situation this extra thickness capability offers the ability to save an otherwise unusable part. Chrome has a hardness of about 1,000 Vickers which gives it good wear properties. It can be ground to size as long as good coolant controls are in place to prevent burning. The resulting finish can reach values of Ra 8 microinches. Although chrome on its own does not offer good lubricity it is filled with microcracks that absorb lubricants and allow for a significant reduction in friction. As long as an area that does not require chrome can be reached by hand or plugged it can be masked with good control of plating run out. Chrome can easily be stripped and reapplied usually many times before a part needs to be disposed of.

On the minus side, however, chrome does have its disadvantages. It does not plate evenly over surface features and the thicker the coating the worse this dogboning affect. There exists a black art in the design of hard chrome conforming tooling to attempt to overcome or at least reduce this problem. Grinding is usually required after plating to bring the component back to size. The microcracks that aid in lubricity are a hindrance to corrosion resistance and sealing. Chrome needs a nickel base coat in order to increase its corrosion resistance and critical hydraulic applications require that the coating be sealed to prevent leakage past seals. Chrome burns easily during grinding so coolant type, flow and nozzle placement must be closely controlled. Lastly, hard chrome plating increases the risk of hydrogen imbrittlement failure in high strength steels so baking is required in order to control this risk.

As can be seen from the above properties, hard chrome is not the perfect coating but because of its long history of use designers have become comfortable with designing around its weaknesses while taking advantage of its strengths. It will take decades for replacement coatings to reach the same status. They will have their own sets of strengths and weaknesses that need to be tested and absorbed into general knowledge.

Table 1

Coating Properties

	Wear	Corrosion	Hydrogen Embrittlement	Adhesion	Dry Lubricity	Coating Cost
Hard Chrome	3	2	0	3	1	3
HVOF	5	4	5	5	31	0
Plasma	4	3	5	3	31	1
ENP	22	43	3	3	4	4
Nedox2000®	5	5	3	3	44	2

Relative comparison of hard chrome alternatives
0-5 scale 5 being the best
Dry lubricity after grinding
Wear after heat treating
Corrosion resistance if not heat treated
Lubricity after polishing, can be improved by adding polymers

THERMAL SPRAY

Thermal Spray is a group of technologies where a material is melted and sprayed onto a substrate. There are a variety of materials used to feed the process as well as a number of ways to heat the material and spray it onto the substrate. Of interest to us are two processes that offer the ability to replace hard chrome: HVOF and Plasma Spray. The process is line of site so there are limitations for small ID's and blind holes. Thermal Spray Coatings do not contribute to hydrogen embrittlement. As sprayed thermal coatings exhibit a rough surface that must be ground to achieve a finish suitable to press fits and seals. Masking can be achieved by the use of shadow masks or a variety of tapes designed specifically for the thermal spray industry.

HVOF

High Velocity Oxygen Fuel (HVOF) coatings have become accepted as a practical chrome replacement for line of site applications. The process consists of a supersonic flame that accelerates a metal powder (typical size range of 20-60 microns) heats it then flattens the powder into a "splat" on impact. The overlap of these splats creates a continuous low porosity coating. The process is very forgiving on stand-off distance which helps with complex geometries. In chrome replacement applications the landing gear industry has standardized on WC-10Co-4Cr powder. Adhesion, wear and corrosion resistance is superior to hard chrome. HVOF can be ground then polished to better than a Ra 2 finish. Although capital and application costs are high it is competitive with hard chrome on a full life cycle comparison.

PLASMA

Plasma Arc Spraying uses a high energy arc to achieve temperatures of 10-20k Celsius. The material is transported within a carrier gas and a high energy plasma jet propels the material to the substrate. The material can be applied to over .015" easily. The coating is very porous which can lead to adhesion and corrosion issues in the as-sprayed condition. Some companies, like General Magnaplate Corporation, have modified the process in order to improve corrosion resistance, wear and lubricity. It can be

ground to a better than Ra 8 finish. Cost is less than that for HVOF.

ENP

Electroless Nickel Phosphorus can provide a hard coating that with heat treating can almost match the wear resistance of chrome. ENP offers excellent thickness control and can be used on complex geometries with confidence of a uniform build. The coating cannot be ground but this is generally not an issue because of the even build and a surface finish that mimics that of the substrate. As plated it is an amorphous coating offering good corrosion resistance. In order to achieve hardness and wear resistance it must be heat treated thus giving up most of its corrosion resistance. There is a compromise between corrosion and wear resistance: as one goes up the other goes down. Heat treating is performed at elevated temperatures which are unacceptable for high strength steels and this factor must always be taken into consideration. Thick builds are possible but in practice .003" is the upper limit due to cost. As plated the coating has fair lubricity. The process does introduce some hydrogen into the substrate and bake controls should be used.

NEDOX2000®

Nedox2000® is a new coating developed by General Magnaplate Corporation that easily exceeds the wear properties of chrome. By creating a synergistic composite coating Nedox2000 ® also offers increased lubricity, wear, temperature and corrosion resistance. The coating will exceed 1000 hours of a B117 neutral salt spray test. After 10,000 cycles on a taber wear test Nedox2000® lost 5.2 mg, ENP lost 27.6 mg. and hard chrome lost 24.0 mg. Clearly it is superior to hard chrome in lubricity, corrosion and wear resistance. The coating can be polished to Ra 25. Additional polymers can be added to the coating to further enhance lubricity, corrosion and temperature resistance. A build of .002" is all that is required to achieve these results. The coating is fully strippable and can be applied to steel, stainless steel and aluminum. Although there is some hydrogen embrittlement it is far less than for hard chrome and can easily be baked out. There is no need to use elevated temperatures on high strength steels in order to gain the benefits of the coating.

SUMMARY

In summary it is hard to imagine that the use of hexavalent chrome will ever be eliminated. However the amount of hard chrome being applied will continue to decline as regulatory pressures increase. At some point it could be discontinued due to the lack of a viable market. Presented here are some alternatives that are currently in production and readily available. HVOF and Nedox2000® seem to offer the best cost/performance capability at this time. Where coating cost is more important than performance Plasma and ENP can make good alternatives.

Equipment and process chemistry suppliers working together with industry are working hard to improve these coatings to the point where they offer superior performance and repeatability at a low life cycle cost. In time we may look back at hexavalent hard chrome as the primitive low performance coating. ■

Joe Pasquarelli is General Manager at Aluminum Surface Technologies.

Connectedness:

Are You Ready for Your Future Environmental Footprint?

By John Seldon


Efficiency via New Dredge.

"How do you want your grandchildren to live? Think about it – that is a commitment to the future …it is about people, not the environment. The environment doesn't have a problem, people do. The environment will live on beyond us no matter what we do." (Sustainability attracts an attentive audience, Janet Baine, GRCA Communications Specialist, Grand Actions, The Grand Strategy Newsletter, Volume 16, Number 5 – Sept./Oct. 2011 (quoting Professor John Fitzgibbon, University of Guelph, Guelph, ON)

My colleague and I have been grinding out developing our new mobile dewatering venture for over four years. When your focus is so heavily invested in a new venture it is sometimes difficult to see the forest for the trees when it comes to anything other than ensuring your current enterprise succeeds. Recently however, your columnist has raised his head up, looked around at a changed working landscape and submitted articles for two conventions so far this year. In doing so, he has found a wealth of new and renewed areas for consideration when it comes to wastewater treatment in general. Let me share some examples and related history from my working experience.

NEW RAW PRODUCT SOURCING – NUANCED NEW PROBLEMS?

Any organization supplying a service or product has at least two environmental tracks to keep clear. The first priority is a safe working environment for its employees in making its product. Within this most basic of rights is ensuring your product does no environmental harm and, importantly, that any waste products generated in its manufacture are handled in a responsible fashion. This has long been encapsulated within the phrase "cradle to grave."

In pursuing new sources of natural gas, the relatively new practice of "hydrofracking" is being used to capture it from shale deposits. This often has the support of environmentalists who see an abundance of clean burning natural gas as a replacement for oil and coal and therefore slowing climate change. By being better for the atmosphere while providing a greater independence from off-shore oil, what could be better?

Consider the following quotes from the New York Times, February 27, 2011:

"With hydrofracking, a well can produce over a million gallons of wastewater that is often laced with highly corrosive salts, carcinogens like benzene and radioactive elements like radium …and…led EPA scientists to advise in a letter to New York that sewage treatment plants not accept drilling waste with radium levels 12 or more times as high as the drinking-water standard. The Times found wastewater containing radium levels that were hundreds of times this standard."

This is a large-scale example of what we need to consider when it comes to the raw materials supplied for the production of our own goods. We need to ask whether our raw components are obtained in an environmentally friendly manner. The writer has had clients follow waste sludge cake produced by his (the writer's) mobile trailered unit and loaded into roll offs, to its final (secure) landfill destination just to make certain that what we said we were going to do, we did. In other words, they were doing due diligence. Are your suppliers reputable in


Efficiency via New Dredge.
Exotics in Waste Sludge.

how they secure or produce their products and are you confident that the waste management firm(s) that handle your wastes are doing so responsibly?

But this example also highlights that age-old question – "Do the ends justify the means?" Is acquiring the environmentally supported natural gas worth the potential for contaminating a waterway or ground water source?

WASTEWATER AS A PRODUCTION CENTRE - COST SAVINGS

Constancy of supply in most instances spells smooth sailing; your needed raw products are delivered on time and in the amounts you requested. Invoicing follows and with no obvious reasons for changing suppliers, you pay the bill. A sense of fairness in the relationship is augmented by periodic meetings with the supplier or his representative, at times, in an effort to resolve a technical problem associated with production, and the use of their product.

Many supplies are purchased by municipalities through the public sector request for quotation regimen. Aluminum sulphate in liquid form is a good example, as municipalities may use it for both water and wastewater treatment. As these costs are often publically available, you can compare them to what you are paying for the same product and determine if you are purchasing it at a competitive price. This has happened within our own firm, after a very long relationship with a supplier of chemicals that we use for processing industrial sludges into cake.

So what has that got to do with the environment? Seeking competitive pricing from a variety of suppliers and finding the most competitive price is a productive end in itself. But it goes further than that. In the environmental department of many organizations there is often resentment when justifying any environmental costs. Addressing the environmental aspects of production are still too often not viewed from the "profit-centre" perspective but rather from the "necessary evil" viewpoint. Unnecessary financial costs hurt the bottom line anywhere but if they can be legitimately reduced in the environmental department it seems they are especially welcomed. Do not wait until you see better pricing by serendipity and then change suppliers, if necessary. Rather, regularly seek the best pricing for your environmental treatment supplies and make your waste management group as efficient as your process stream should be.

EXOTICS AND YOU

Early in the writer's working career he was responsible for the operation of the City of Barrie Ontario's municipal wastewater treatment plant. Characteristic of an influent "exotic" in those days was a high metal concentration (i.e. chrome, nickel, copper), often from plating operations. When precipitated out during the treatment process they would be concentrated in the plant's biosolids which were trucked from the plant for agricultural application. Unacceptably high levels of metals in the biosolids could jeopardize their use as an agricultural supplement. Historically, municipal sewer surcharge by-laws were put in place limiting the amount (by concentration) of many metals entering the raw wastewater stream.

In this era, although metals may remain a concern, organic exotics are now being looked at in much the same way. These may be medicines/pharmaceuticals or complex organic compounds from a manufacturing process which can pass completely through a conventional wastewater treatment process unchanged, be changed by the process or break up into unwanted sub-compounds. Problems occur when these enter the receiving stream and harm or be incorporated into aquatic life forms and those that feed on them. Does your firm's environmental fingerprint include exotics that are discharged to the municipal sewer or directly to a receiving stream? Will you be subject to new sewer use bylaws addressing compounds of this type and are you ready to remove them, destroy them or replace them with an alternative product that does not present this problem?

Pie in the sky? It will never affect you and your production process? Salveson et al address studying new techniques for the oxidation of endocrine disrupters (exotics). These organic based compounds (older, familiar examples are DDT and PCBs) are a long way from the inorganic compounds (metals-based) addressed above.

SEWER SCIENCE IS WATCHING – SEWER SOCIOLOGY

This is all a part of the new sophistication accorded to wastewater treatment and called "sewer sociology". It is defined in Enfinger and Stevens' article "Faithful Flow" as the following:

"Sewer sociology, the science of society, social institutions and social relationships viewed through the eyes of a sewer; specifically, the systematic study of the development, structure, interaction, and collective sewer use of organized groups of human beings."

In this kind of science the "sewers' eyes" are focusing on all manner of compounds from illegal drug use to the endocrine disrupters addressed before. What does all this mean to you? Wastewater treatment has always been a sophisticated process, though too often this had not been recognized. Failure on your part to appreciate it now may bring you unexpected grief in the future. A good defense? – Know the constituents of your wastewater stream and ensure no harmful chemicals are discharged.

WASTEWATER OPERATORS – BABY BOOMER REPLACEMENT

As a "Boomer" it has been interesting to read any number of articles about the retirement of my generation. One I would suggest is "Rebuilding through recruiting" by Margie Anderson, which addresses this issue from an American municipal perspective. From my general reading, at best we are viewed as "experienced" and our loss will be hard to replace. A more jaundiced perspective is that Boomers have been on the stage too long as it is and many younger workers will be relieved to see us gone. Regardless, replacement of experienced personnel should be viewed as an opportunity, especially when the "experience" being replaced is less needed and the expertise of the future has the knowledge to address issues like those discussed above.

Anticipating these changes, I am still in the world of the living after all, I have looked at my working field and have written a paper on this topic (presently in the editing phase). In particular it addresses the qualifications I feel are required for an individual operating a municipal wastewater treatment process. A second paper is being researched and written focusing on the industrial side and the common links between the two.

The long and short of it is this. The key to good operations is to have appropriately-schooled and accredited technologists as the core of your operator staff. I am distinguishing here from those who are environmental coordinators, or managers. There are enough of the latter and too few of the former in either my generation or the replacements coming on stream. The need for ever more sophisticated wastewater treatment is just going to increase and those firms which bring into their ranks operators who are truly knowledgeable in this field and who wish to be there as a career option will be ahead of the game. And we "Boomers" will know – happily –that the work will have been turned over to better hands than our own.

IN SUMMARY

Look carefully at the source of your raw product as well as the product itself and consider the environmental impacts then tied to your product.

Look to make your environmental treatment process stream as cost-efficient as you would your production line. You have nothing to gain but profit.

Review your environmental fingerprint in light of increasing societal concerns over organic exotics entering our water supply and food chain.

Wastewater discharge is becoming the source of much more sophisticated examination as "sewer sociology" becomes more prevalent and relevant.

When you hire operating personnel to run a wastewater treatment system, hire well-schooled, accredited technologists. They will repay their salary again and again. ■

John Seldon is president of Temporary Operations & Maintenance Inc., Port Burwell, ON, and has 35 years experience in the industry. (jdseldon@hotmail.com, 519-240-2926)

Efficiency, Capacity, Airflow and Cost

To collect the several different types of overspray – solvent based, water based, adhesives, stains, baking enamel and more – requires two distinct types of filters, Impingement and Impaction. Each category features many different filters made from materials such as paperboard, fibreglass, polyester, paper and corrugated cardboard. With so many possible combinations of overspray and filters, the goal of the filter supplier is to match the best filter with the type of overspray being collected, while at the same time considering filter efficiency, air-flow, capacity and cost.

Impingement type filters include cardboard baffle style and accordion style. These high capacity filters maintain their efficiency level and air flow over the life of the filter. They do not adversely affect airflow until they are 95 per cent or more loaded.

Impaction type filters are highly efficient and made up of paper mesh, fibreglass and polyester pockets. As they load they become more efficient and airflow is continuously reduced over the life of the filter. In the end the filter is completely "blinded" and air flow virtually non-existent.

GRADUATED DENSITY FILTRATION (TWO STAGE FILTRATION)

Graduated Density Filtration (GDF) is the principle dictating that overspray should meet the highest capacity filter or part of the filter first, followed by the highest efficiency filter or part of the filter. The most common example of GDF in a single stage filter is an open weave paper mesh filter (capacity) sewn to a dense polyester backing (efficiency). This type of filter adheres to the principle of GDF, but because the filter components are sewn together and disposed of at the same time it is rare that both the capacity stage and the efficiency stage are fully loaded. When this filter is changed out, it is because one of the components is "full" but the other component still has some unused capacity. A single filter that uses the principal of GDF is therefore not as effective as a multiple stage exhaust, which uses a high capacity primary filter and a high efficiency second stage filter.

A Two-Stage System, which uses an impingement filter in front and an impaction filter in behind, is the most economical means of filtration. This is because it gets full value out of the high capacity impingement primary filter and full value out of the high efficiency impaction secondary filter when they are changed out separately. In Europe nearly all spray booths are made with multiple stage overspray collection. In these spray booths, it is a common practice to use a high capacity primary filter with a high efficiency second stage filter, which are changed out separately. This way you get full value out of every filter. The problem in North America, except in the aerospace industry, is that nearly all spray booths are made with a single stage exhaust. In order to get full value GDF in a typical local spray booth, a second stage must be created, such as The Grabber Filter System. As always, when considering the capital cost of an improvement, the return on investment (ROI), must be calculated. A good ROI calculation will include factors such as the frequency of filter change out and the labour cost of each change, the disposal cost of filters, as well as the cost of the filters themselves. Often times a high capacity impingement filter will cost twice as much, but last three times longer than a cheaper impaction filter. When the frequency of change is reduced labour costs and "hassle factor" are also reduced and these costs must be included in an accurate ROI calculation. The Grabber Filter System is a two-stage system utilizing the highest capacity impingement type filter

(corrugated cardboard baffle box) with the highest efficiency impaction filter. When fully loaded the baffle box filter hold 8-10 pounds of overspray solids. Meanwhile, the second stage Grabber is twice as efficient as the EPA standard, to a theoretical emission rate of .0114 grams per cubic foot of air. Used as a finishing filter it produces no effectual resistance to airflow.

BOOTH INLET FILTERS

There is a wide choice of booth inlet filters depending on customer preference and the application. Proper selection of air intake filters for enclosed paint and powder coating booths requiring a dust free environment can prevent product rejects. Filters vary from roll media or cut pads, flat media or extended surface, un-constructed or self-supporting, tacky or dry texture. Common types are:

Polyester Self Supporting Panels (SSP) – SSP-53 (dry tack) and SSP-55 (wet tack) are the most common. Manufactured from 2 ply polyester media and incorporating a internal wire frame, these filters are designed for velocities up to 400 fpm. Unaffected by humidity they have initial efficiency of 88.4 per cent.

Dustlok Polyester Self Supporting Panels: used in applications requiring higher efficiency and/or higher dirt holding capacities. These filters are designed to withstand velocities of up to 500 fpm, and have an initial efficiency of 94 per cent.

FR1 Self Supporting Panels: engineered to assure superior performance for all crossdraft and semi-down-draft style paint booths. FR1 panels and blankets offer the ideal combination of maximum efficiency, high dust holding capacity and low resistance to airflow for ideal air velocity in the paint booth.

Installing the GFSWAVE spray booth filter media.

Photo courtesy of Global Finishing Systems

FF560GX Diffusion Media Air Filter: constructed from selected high performance fine denier fibers in a gradient density multi-layering technique to ensure high depth loading with optimal lowest pressure drop performance.

PAINT ARRESTORS

Paint arrestors are the most varied and expansive filter group for the paint and coatings industry. They vary in weights, thicknesses, densities, sizes and materials of construction. Paper paint arrestors (PPA): a multi-layer product often used as a pre-filter or with two filters in tandem, the standard paper paint arrestors provide modest efficiency with steady airflow. Paper paint arrestors with polyester backing adds efficiency to the PPA technology by bonding it to a non-woven high efficiency polyester backing.

Fiberglas Paint Arrestors: feature a progressive density construction. This standard 2" thick fiberglass paint arrestor is especially useful for heavy coating and wood working applications. It has an efficiency rating ranging from 91.5 per cent to 98.7 per cent.

Smart Media Paint Arrestors: manufactured as a high loft filtration product with progressively denser layers of fiber from the air entrance to air exit surfaces. Efficiencies range from 99.1 per cent to 99.9+ per cent.

Accordion Pleated Paint Arrestors: an industry classic, used on general spray applications. Efficiency ranges from 98.1 per cent to 99.0 per cent.

Channel Media Paint Arrestors: popular as a pre-filter in multi-stage spray-to-waste powder coating applications. Efficiency rating 99.7 per cent. ■

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A SPRAY BOOTH CASE STUDY – DUROAIR

A NEW INNOVATION IN SPRAY BOOTHS

Spray Paint Booths take up a lot of Space. In some cases they are not being used every day. For this reason, finishers sometimes outsource their paint jobs. Now a Canadian company has come up with a solution to the space and outsourcing challenge.

"The need to provide onsite finishing led us down the path of developing a mobile painting solution," explains Ryan Watt, Manager, Business Development, Duroair Corp.

"We built and patented a mobile airborne contaminant control system and received a mobile C of A for 10 systems," he says. "The exhaust system would attach to an enclosure to form the paint booth. Our expertise began with airflow and filtration and later we developed the capability for retractable enclosures."

THE BOOTH

Duroair manufactures retractable paint booths that fold in to 20 per cent of their size. Whether a large or small painting enclosure is needed, the system will match the airflow required to ensure a quality finish in a compliant work environment. Duroair retractable paint booths help with challenging space constraints. Facilities can now place their paint booth anywhere on the shop floor without requiring additional space around the booth. Simply retract the enclosure, load the spray area with the use of an overhead crane or fork truck, pull the enclosure around the work piece and the result is a fully compliant paint booth.

GOING COMMERCIAL

After using the system themselves in the service business for approximately seven years, Duroair decided to commercialize the system for sale.

"After another year of development we began the sales process," says Watt. "We redesigned the enclosure in the past year to add quality, stability and ease of installation and use." The new style enclosure is a modular design, which allows for a custom-sized enclosure. "We are continuously working on product development and product improvement based on customer demand," says Watt.

The decision to market their booth after using it themselves was based on market demand.

"As a service business, many of our customers were looking for the opportunity to purchase a system and complete the work in house versus outsourcing," says Watt. "We were approached by a major paint company who also saw a large demand in the market and our commercialization began." They created a website and basic marketing that in turn created additional demand. "As our marketing is improving, demand is growing," says Watt.

AIRFLOW PROCESS

The booth's airflow is tapered therefore centering it down the center of the booth and creating an envelope around the work piece. Overspray is minimal. The enclosure is pretreated with a releasing agent so that overspray can be wiped off using approved cleaning products. Should the fire rated vinyl need to be replaced, customers can order a new vinyl. "That said, in three years of sales, we have not had a customer request a replacement," says Watt.

"During the dry cycle, we increase the airflow and wick the moisture out of the paint in order to improve dry times," explains Watt. "With the airflow being centered straight down the center of the booth, we have minimal airflow along the floor, walls or ceiling reducing any dirt or dust being pulled into the airstream and onto the work piece."

The booth uses a two-stage filtration process in order to filter over 99 per cent of the particulate.

"Our fan and motor assembly runs on a variable frequency drive so that the user can adjust the amount of airflow depending on the size of the work piece." Volatile organic Compounds (VOCs) need to be 100 per cent exhausted to the exterior similar to other paint booths.

Watt says customer response has been very positive as a retractable enclosure provides solutions for customers that fixed paint booths cannot.

"We have two target customers," says Watt. "First is the customer who requires onsite finishing capabilities, but is not painting on an everyday basis therefore they cannot afford to give up valuable floor space." He adds, "These customers are looking to fabricate and paint in the same bay." Watt continues, "The second customer has difficulty with material handling and loading the paint booth. Our system allows these customers full use of their overhead cranes and forklift to load the painting area. The customer can retract the enclosure, load the paint area and extend the enclosure around the work piece. This reduces the customers material handling cost and time while improving safety."

Sales of the booth began in 2010 as the company chose customers to field test the system. Although no major flaws were found with the system, it was redesigned to add additional quality, stability and ease of use.

Watt says, "We are the only complete retractable paint booth system. There are other retractable enclosures and curtain walled enclosures, however they do not have the same airflow capabilities."

Watt says the company has a technical team that is always looking at product improvement and providing unique solutions to customer needs. "Our modular design allows us to provide any size enclosure to customers and we have the airflow capabilities to match the airflow required to produce the perfect finish, quality and compliance," says Watt. "Moving forward, I see us providing larger enclosures and breaking into other markets where airflow is required, however not necessarily for painting." ■

Duroair is a Canadian company based out of St. Catherines, Ontario. The business is privately owned by a small group of investors. The original service business, where the technology was developed was started in 2002. www.duroair.com

SPRAY GUN EFFICIENCY

Manufacturers and distributors of automatic liquid paint spray guns discuss market demand.

Jim Bunnell of **Can-Am Engineered Products, Inc.** says, "The main things we hear people ask for is transfer efficiency and good, consistent penetration into tough-to-reach areas."

He continues, "Our guns were rated by the South Coast Air Quality Management District at 90 per cent transfer efficiency in their lab tests. Also, our turbine-powered guns generally achieve much better penetration into awkward recesses and thus often can solve penetration problems a paint shop might be having with traditional compressed-air HVLP guns."

The Can-Am 2100 Automatic Spray Gun is the company's most popular automatic gun. It has an aluminum body with stainless steel fluid passageways for full compatibility with waterborne coatings and has Teflon packings. It is available in recirculating and non-recirculating paint supply versions. A full assortment of fluid tip sizes from 0.5mm-2.5mm are available as well as several different air caps. Mounting brackets are available for most applications.

S.T. Rajan, Vice President of **Exel North America, Canadian Branch** says customers are generally classified under small, medium and large companies.

"First and foremost is…who are these customers that are interested in automation? The Small customers are generally very happy with the manual guns they have and some small customers, when looking at large volumes, become inquisitive and start a dialogue on automation." He adds, "The medium sized customers are looking into automation all the time. The large customers definitely have automation or are in the process of incorporating automation in their plant." Rajan continues, "The moment we get into discussions about automation, the following questions are always working in customers minds:

1) What type of technology would best suit their manufacturing process and needs? Do they need Airspray, Airmix, (air assisted airless) or Airless technology?
2) The second question is… How closely associated is the gun manufacturer with the machine builder? This is very essential because the better the association is, the less the problem is for the end user once the system is installed.
3) In the cases of heavy automation, there is also a concern about the integration of the guns and controls with the machine controls. This is important for the customer because he might be use to certain type of PLC controls.
4) The close association with the paint manufacturer so that the start up process is smooth and the product is painted to every ones satisfaction.
5) When selecting the guns or applicators, the customer is looking for references, the construction of guns, whether they are stainless steel or plated. The ease of maintenance, the price of spare parts and the service they can get once there is a break down.
6) Once installed, the customers are also looking for training programs to train their operators on guns. This training program has to be tailored to their production process and easily understood by their operators. They are looking for easy to use charts with break downs so that the gun manufacturers are easy to work with. Ultimately, they are looking at the quality of atomization required for their process and the transfer efficiencies of the applicators. At the end of the day, the customer wants to apply the right amount of material with very minimal wastage."

Rajan says that Kremlin Rexson works very closely with machine builders, integrators and paint companies. "We have testing labs in Plymouth, Michigan and Scarborough, ON, where we can simulate any situation using the customers coating to apply to any product."

EXEL North America, Inc., manufacturer of **Kremlin Rexson AVX** and ATX automatic spray guns created the Airmix

technology in 1975. Arimix technology reduces paint consumption, reduces cost of ownership, increases productivity, improves working conditions and preserves the environment.

Airmix is efficient non-electrostatic spray technology providing up to 86 per cent transfer efficiencies. Most automatic machine manufacturers using medium fluid pressure atomization have purchased the Airmix automatic spray guns because they are reliable, deliver an outstanding finishing quality and their construction is simple and easy to maintain.

EXEL's Airspray, Airmix, and Airless spray guns deliver the following benefits:

- Very easy to Maintain.
- Very High Transfer Efficiencies
- Properly Designed Rebuild kits
- Easy Adjustments to flow air and fluids.
- Wide selection of tips, nozzles and air caps to suit different applications
- Size of the guns where they are fitted with very less room to play

EXEL customers have reported significant material savings, downtime costs reductions and increased finish consistency reducing the number of rejects.

Wendy Hartley Product Manager **Graco Industrial Products Division** says customers want an automatic gun that is tailored to their spray application.

"Whether it is spray performance, fluid flow rate or material compatibility, a customer wants choices in a gun that will meet the requirements of their production," she says. "For example, customers that are spraying small components are asking for precision in the spray pattern and the fluid flow. The spray pattern must deliver a high quality finish in a precise, repeatable spray pattern. The gun has to be designed to deliver a stable and repeatable fluid flow rate. In addition, the operator has to be able to adjust the fluid flow in fine increments. The ability to deliver a stable, high quality spray pattern is key for small component finishing."

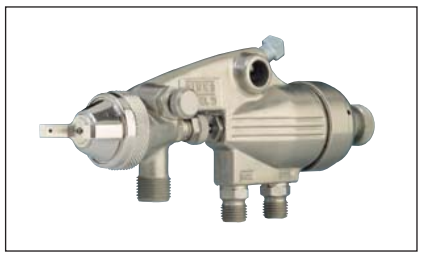
The AirPro Auto has models with air caps designed to spray general metal or wood finishing materials. So, the customer can get a high quality finish for their application. In addition, if a customer has an abrasive material, there are models with high wear components to reduce replacement part costs. **The AirPro EFX** is an automatic gun optimized for precision finishing. Designed to meet the demands of small component precision finishing, it delivers excellent low flow rate stability with a superior finish.

Designed for precision finishing in the small component finishing market, the AirPro EFX has a complete line of air spray automatic guns with optimized performance at low flow rate.

These compact and lightweight guns have aircaps and nozzles that are specifically designed to deliver superior spray performance for the small components market, which includes electronics, automotive and general metal. In addition, each gun is shipped with a serialized spray pattern imaging report that includes an actual spray pattern photo produced using laser-light sheet imaging. This allows users to not only see the high quality of the spray pattern with their own eyes, but also view a report that lists spray pattern benchmarks that each gun must comply with before shipping.

"As demand for high-end small component finishing continues to grow, it's important to deliver the Graco technology that can meet these needs to stay competitive in the marketplace," said Wendy Hartley, Product Marketing Manager. "With its optimized precision spray finishing, the AirPro EFX gun is sure to be a tough competitor in this market."

Liz Lisiecki, Atomization Manager for **Binks Spray Guns** says their customers are asking for a spray gun that can spray a wide variety of coatings. "They want consistent particle size and distribution," she says. "Repeatability is a must. The spray guns must be robust and long lasting and when maintenance is needed, it must be quick and easy. Customers want to reduce the cost of their operations. They can do this with an efficient gun that reduces labor, rework, material usage, and air consumption."



The **Binks Model 21** is an automatic gun that will function with a wide variety of coatings including those with a high percentage of solids or abrasives, such a ceramics. Utilizing the new 21MD-2 air cap, very large patterns with consistent particle distribution can be obtained. The Model 21 is a robust spray gun with a body made of forged and plated brass. The brass body makes it the toughest automatic gun on the market. With a one piece forged body, triggering

is quick, precise, and dependable allowing this gun to perform under the most extreme conditions. A wide variety of air caps allows the user to find the perfect fit for their application.

Binks Model 21 Automatic is the heavy duty, pneumatically operated gun for spraying all conventional coatings. To accommodate harsh working environments, the traditional one piece forged brass body is back with new High Performance set ups. This gun has all the features, durability, and versatility that made the Binks Model 21 the industry standard on automatic finishing lines.

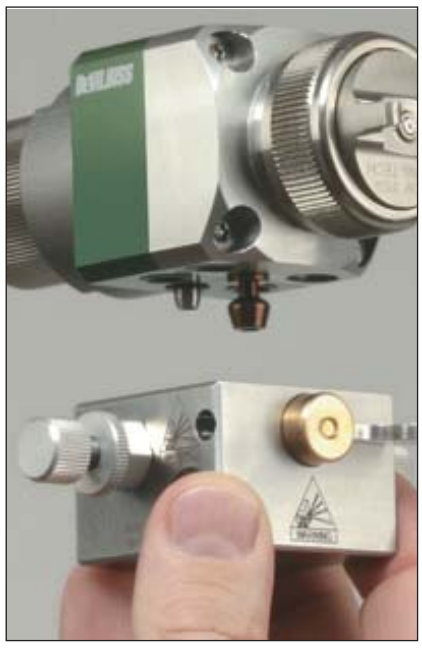
Quick and precise, the Binks Model 21 is controlled remotely with a three-way valve and is recommended for rotary, reciprocating and spindle machines.

Additional features include:

- Drop forged brass plated one piece body
- Adjustable stainless steel fluid needle
- Fan control at gun head (control and adjust spray patterns)
- Expanded setups for all materials
- Model 21V option is built for abrasive fluids with a tungsten fluid nozzle and needle

Joe Nieradka, Senior Account Manager Canada for **DeVilbiss Spray Guns** says, "In most applications the finish quality is the foremost criteria." He adds, "This is achieved in automatic installations through repeatability of spray pattern and fluid control. With space as a premium in many of the automatic gun movers and robots, size and weight are a major factor."

The Compact Trans-Tech X is a lightweight applicator that answers the needs of both Automotive and General Industry. The breakaway design allows the gun to be easily serviced on line without major disruption to the flow of production. The Trans-Tech technology imparts superior spray finish and is capable of repeatability with a guaranteed frequency.



DeVilbiss Compact Automatic X is small in size but big in features. Highly sophisticated in application technology and product design, this automatic gun detaches from its mounting block in seconds via the easy thumb release mechanism — no tools needed. Rapid-detach feature from DeVilbiss dramatically reduces production downtime; makes maintenance easier and servicing faster. Additional features include:

- Recirculating and non-recirculating gun head (all in one)
- Fixed gun positioning
- Small foot print
- Wide range of air caps (Trans-Tech and HVLP)
- Removable stainless steel spray head
- Fluid adjusting knob with 18 indexing positions (precision control of spray/fluid flow)
- Stainless steel passages (waterborne/solvent based materials)
- Independent fan, atomizing and triggering air
- Indexing air cap (consistent reproduction of spray pattern)

Sata Canada says that customers need a high application process security, low maintenance requirements, long-term spare parts availability and individual solutions for their needs. This is all characterized by the SATA Automatic & Robotic industrial spray guns.

The company says according to VOC legislation, only "state-of-the-art" coating systems with high material transfer rates may be used: i.e. equipment with HVLP or RP pressure technology. This helps protect the environment and reduce solvent emissions. SATA's strict controls during the manufacturing & assembly process secure consistently high quality in terms of spray performance, atomization and

the achievable finish. Material savings also create significant economic advantages to the users.

SATAjet 3000 A HVLP & RP are versatile, pneumatically controlled automatic paint spray guns for almost all coating applications. They feature a large variety of nozzle sizes, nozzle extensions up to three meters, and special version nozzles.

A homogeneous spray gun with maximum transfer efficiency due to innovative nozzle technology, it offers the highest material transfer rate due to HVLP low pressure technology.

Suitable for paint jobs where high application speed is required.

Automatic Liquid Paint Spray Gun manufactures offer products to suit every need. ■

The companies contributing to this article can be reached at:
www.canamengineered.com
www.turboairdrying.com
www.exel-na.com
www.graco.com
www.binks.com
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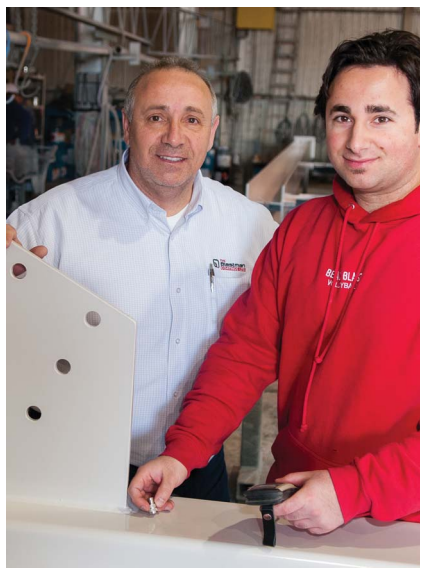


Ernie and Adam De Angelis with part of the Ripley's structure.

take a total of five months to complete. Just about every inch of shop area in the 25,000 sq ft building at Blastman is taken up with the Ripley's project.

Adam says that he has to measure and keep track of every piece that comes into the shop and that every piece seems to be different. He says it will be interesting to see how it all fits together. The structure design of the building seems to incorporate many angles. "It looks like there's not one straight line in the place."

Ernie explains, "The reason he must keep track of every piece of steel is because, areas getting fire proofing on-site must only receive the Carboline zinc primer. The other areas, the client wants the steel first zinc primed first and then epoxy coated in a black, or in a grey colour, depending on the area where the steel is being installed. Most of the coatings used to paint the steel is the Devoe product. The Carboline 859 zinc primer is to be used in areas where the fire proofing is required." Fireproofing of the beams will be done onsite after the building is assembled.

Blastman uses Devoe High Performance Coatings, part of Akzo Nobel.

Ken Wiersma, Regional Sales Manager, Protective Coatings – Canada, AkzoNobel Coatings Ltd. (Canada), Brampton, ON says, "I have been dealing with Ernie De Angelis of The Blastman Ltd. since the early 1990s. Their shop blasting and painting facility provides protective coatings for a wide array of industries." He adds, "They provide quality work and have done a lot of projects for high value infrastructure projects."

Wiersma continues, "The specification for this Ripley's project calls for an SSPC-SP-6 Commercial Blast followed by one coat of Catha-Coat 315HB at 3.0 to 4.0 mils DFT.

Ideal for cathodic protection of steel structures, tanks, equipment, piping and other steel surfaces exposed in mild to severe industrial environments." He adds, "The zinc then receives a finish coat of Devran 224HS Epoxy at 4.0 to 6.0 mils DFT, ideal for structural steel, piping, tanks, and equipment in chemical, fertilizer, power plants, petroleum refineries, pulp and paper mills, water and sewage treatment plants and mining operations. It can also be used in the hard service areas of correctional facilities, schools, commercial pools and arenas where a high performance architectural coating (HIPAC) is required."

Photo courtesy of Ripley's Canada

Ernie De Angelis.

All of Blastman's spray paint equipment is by Graco. They do a lot of thickness testing during the project and are big on quality control. The company is NACE certified. The De Angelis' say the specs for the Ripley's project are very demanding.

Ernie handles sales and quotes, and works mostly in the upstairs offices of their facility, while Adam handles production. Ernie's wife Anna occasionally comes in to work in the office. Their second son Michael is currently studying at university. Blastman's work has been mostly for Canadian projects, but can be shipped anywhere, even Saudi Arabia as with a past project. "It took that one six months to get to its destination," says Ernie.

The Ripley's project is the biggest and most high profile job the company has had.

Ernie De Angelis says they are hoping to expand in the future.

ABOUT RIPLEY'S AQUARIUM CANADA

The Ripley's Aquarium of Canada is a 12,500-square-metre (135,000- square-foot) major family attraction with 5.7-million litres (1.5-million gallons) of marine and freshwater habitats from across the world. Among the many interactive exhibits for families and school groups, the Aquarium will contain:

More than 13,500 exotic sea and freshwater creatures, comprising more than 450 species;

A unique 96-metre-long (315 foot) moving walkway through an acrylic tunnel deep below the 2.84-million litre (750,000-gallon) Shark Lagoon, a habitat occupied by 3 to 3.7-metre-long (10 - to 12-foot) sand tiger sharks, largetooth sawfish and dozens of other species. Guests may step on and off the walkway as they choose to spend extra time admiring the huge sharks;

Main exhibition includes a tropical reef tank, along with Great Lakes exhibits and Atlantic and Pacific habitats; A Marine and Freshwater Education Centre with dedicated classroom space; Flexible and changing exhibition space; Food service and retail store.

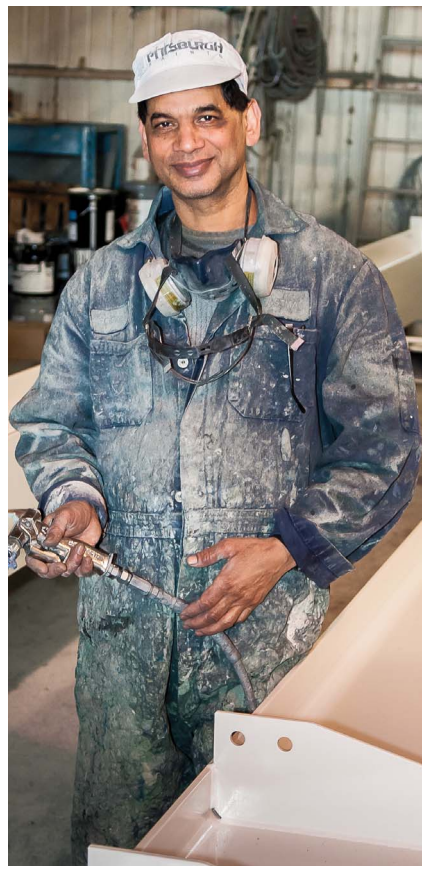
The Aquarium will be open 365-days-a-year, starting in the summer of 2013.

Ripley Entertainment Inc. has partnered with the Government of Canada, the Government of Ontario and the City of Toronto to bring this major attraction to Toronto, ON, All levels of government support the project, recognizing that the aquarium will be a landmark addition to Toronto, will boost tourism and create more than 600 jobs, while generating an immediate economic impact of more than $50 million.

Ripley's Aquarium of Canada is a member of the Ripley Entertainment family of worldwide entertainment facilities, which includes two existing aquariums.

Ripley's aquariums are known for their shark exhibits that feature 10-foot sharks and two of the longest underwater tunnels in the world. More than 12 million people visit Ripley's 80-plus attractions in 11 countries each year. ■

Ripley Entertainment Inc. is a division of the Jim Pattison Group, the third- largest privately held company in Canada.



Ramesh Chamder.

Wheelabrator Blasting Machine.

PROJECT SPECIFICATIONS

Location: Located in the heart of downtown Toronto, next door to the CN Tower
Projected Opening Date: Summer 2013
Square footage: 12,500 sq. metres (130,000 sq. ft.)
Total water volume: 5.7 million litres (1.5 million gallons)

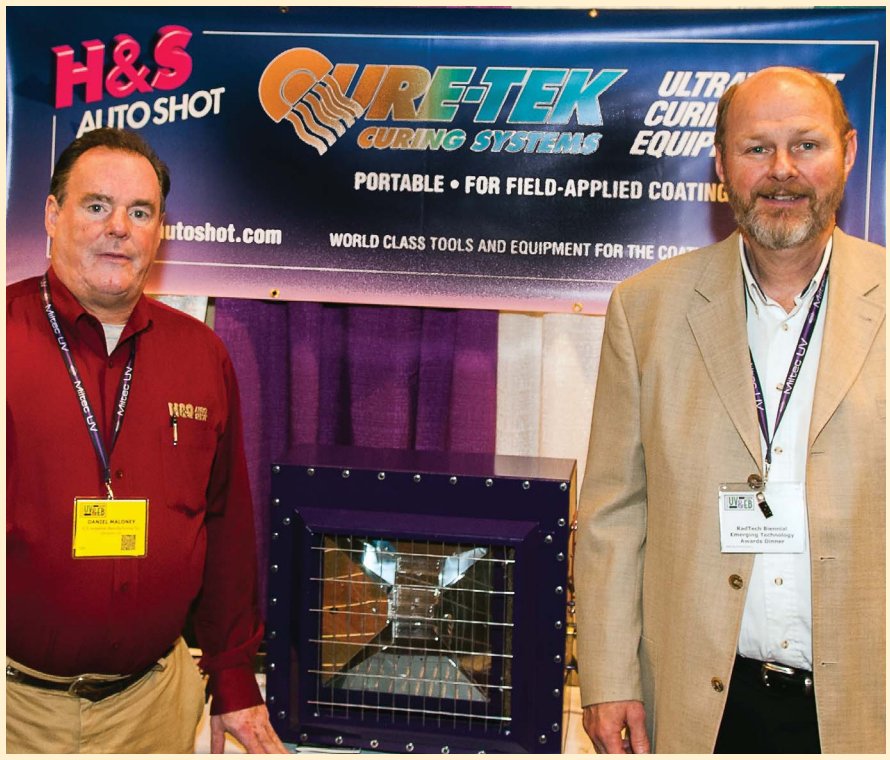
RadTech UV&EB Tech Expo and Conference 2012

Photos By Pete Wilkinson

The latest innovations and updates in UV/EB technology, were featured at RadTech 2012, April 30 - May 2, Hyatt Regency Chicago, Chicago, IL. The RadTech 2012 Conference offered over 100 papers and 80 exhibitors. Organizers are pleased with the response to the show.

Vadim Nazarov, Envisiontec, Montreal, and Michael Montagano, Cytec.

Ron Leavitt, Mike Olivieri, and Joe Coffey, Shamrock.



Daniel Maloney and Bob Bonham, H&S Autoshot, Georgetown, ON.

Yasmin Sayed-Sweet and Laurie Morris, Alberdingk Boley Inc.

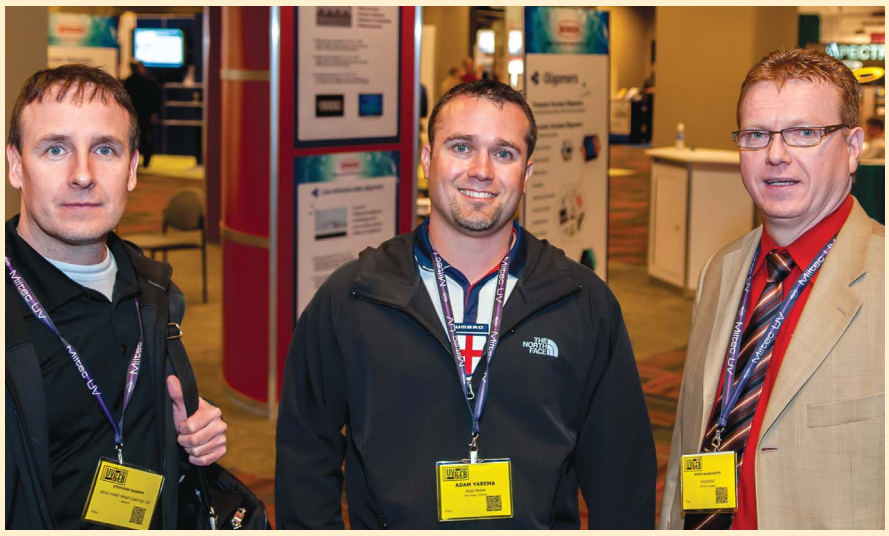
Bob Ratcliff and Josh Duffy, Unimin Inc.

John Radice, Sartomer and Mike Cadden, Ferguson Chemical Innovation.

Meredith Stines, American Ultra Violet.

Bob Ruckle, Eugene Ward and Adam Horne, Siltech.

Ryan Schwarb, Keyland Polymers and Timothy Kendrick, BW Global Structures, Abbotsford, BC.



Stephane Gagnon, Adam Yarema and Denis Blanchette, AkzoNobel Coatings.

Ed McGhee and Jim Borsuk, Nordson.

Paige McPeake and Mario Marceau, Unipex Solutions.

Fabtech Canada 2012

The first Fabtech Canada took place in March 2012, in Toronto, ON drawing successful crowds. The Society of Manufacturing Engineers (SME), Fabricators & Manufacturers Association, Intl. (FMA) and American Welding Society (AWS) collaborated on this three day event which featured a comprehensive showcase of the latest technologies, tools and trends – with a special focus on fabricating technology. The next Fabtech Canada is set for 2014.

Photos By Pete Wilkinson and Sandy Anderson

Mathew Teskey, Lynsey Ferrie and Sue Pauck, Colourific Coatings.

Euriah Vold at the GFS booth.

Ryan Watt, Bob Leadley and Kelly Rankin, Duroair.

Matt Liska, Jake Marsh and Jeff Brown, Cambridge Materials Testing.

Mark Morley, Henry James King Luminaire with Greg Taylor GEMA.

Paul Hamilton and Michel Leveille.

Paul Kelly, Rajan and Terry Kueneman Kremlin/Exel and Bob Bedard BMP Metals.

Greg Speher and Hovinga Latem/Plastico.

Jonas Zelisko, Derek Bowen, Christian Canzano and Craig Kerr with Bex Spray Nozzles.

Walther Pilot's Evan, Bill and Brendan Johnesee.

Ed Baldassi of Offsite Industries holds a sample of their new finishing technology.

Ernie de Angelis of The Blastman Coatings in Brampton, ON.

INNOVATIONS

in High Performance Coatings

A look at innovations in high performance coatings, the manufacturing of high performance epoxy, self-healing polymers and ceramic coatings. A high performance coating means that it is designed for strength, weather resistance and so many other factors. A challenge for manufacturers is the create high performance coating system solutions that offer all the attributes required while still being environmentally friendly.

Endura Manufacturing makes high performance polyurethane and epoxy coatings. Product lines include, industrial paint systems, easy clean anti-graffiti coatings and environmentally friendly primers and topcoats. Endura EX-2C Low VOC colour coat is a VOC compliant formula that meets or exceeds the Canadian Automotive refinishing guidelines for VOC levels in colour coats. Endura EX-2C Low VOC Topcoat is a two component highly cross-linked, high performance polyurethane coating for protecting a wide range of surfaces. High gloss, color retention and outstanding resistance to chemicals, abrasion, and impacts, provide maximum protection and an impressive surface finish.

PPG High Performance Coatings offer a full line of coatings for demanding commercial applications. The Specialty Performance Products line includes special, corrosion-controlling coatings and specialty primers that provide the "in-house" capability of refurbishing vinyl and leather, and repairing and refinishing flexible and rigid plastics.

THEIR NEWEST INNOVATIONS ARE:

Chroma Finish: A high-chroma, fade-resistant finish for stucco and exterior insulation finishing systems (EIFS), Chroma Finish is designed to produce strong, intense colors typical of those used in corporate identity campaigns or on any job where vivid color with increased color retention is desired.

Mastertop VB 240 FS: A moisture-mitigation solution for use with resinous flooring systems, it is a high-performance epoxy coating that bonds aggressively to concrete for long lasting floor installations.

Tinuvin 1600 is an ultraviolet (UV) light absorber that extends the durability and life expectancy of architectural and automotive glazing applications, window films, displays, protective films, photovoltaics and other products exposed to intense UV light.

FORMULATING FOR HIGH PERFORMANCE

Formulating high-performance epoxy coatings requires extensive knowledge in raw material selection (resins, modifiers, curatives, pigments, additives, solvents, etc.); stoichiometry and mix ratios; cure chemistry and catalysis; rheology; film formation; adhesion; and corrosion.

Bisphenol A (BPA) diglycidyl ethersor resins are used in virtually all epoxy coatings including the high performance:

- Aerospace primers;
- Automotive primers (cathodic electrodeposition);
- Beverage and food can linings;
- Chemical-resistant tank and drum linings;
- Industrial maintenance coatings (factories, refineries and chemical plants);
- Marine coatings (ships and offshore structures);
- Pipe coatings (oil and gas transmission); and
- Transportation coatings (railroad, trucks, buses).

BPA epoxy resins are made by reacting bisphenol A with epichlorohydrin in a reaction termed "glycidation". All BPA epoxy resins are not equal.

Coating failure is unacceptable. A manufacturer needs to understand how normal resin variations could impact coating performance.

Key points:

- Do not overlook subtle details because they could lead to costly problems.
- Do not assume that all epoxy resins are the same. They come from different suppliers using different processes and equipment.
- Talk to your epoxy suppliers about these potential differences.
- Get the typical range for the resin characteristics that are not governed by specifications.
- Get certificates of analysis on all resin lots. This information is also useful in comparing resins from different suppliers and can be helpful for troubleshooting.
- Do not do all development work with a single lot of resin. Use different resin lots, potentially from different suppliers.
- Qualify alternate epoxy suppliers for your formulations. Verify that supply changes will not affect performance.

SELF HEALING POLYMERS

Some of the newest technology for high performance coatings systems is self-healing polymers – a class of smart materials that have the capability of repairing themselves after damage, without manual intervention. Building on recent breakthrough technology in the design of microencapsulation-based self-healing systems, development of self-healing coating systems for extended corrosion protection of steel substrates is underway. A self-healing coating based on this technology would extend the lifetime of the corrosion protection system and reduce the cost of labor and maintenance.

Two different PDMS-based chemistries were used to achieve self-healing functionality in commercial thermosetting and elastomeric coatings.

North American Market for High-Performance Ceramic Coatings to Reach $2 Billion in 2016

According to a new technical market research report, the North American market for high-performance ceramic coatings was worth more than $1.3 billion in 2010. This figure was expected to increase to more than $1.4 billion in 2011 and to more than $2 billion by 2016 at a projected five-year compound annual growth rate (CAGR) of 7.4 per cent.

The ceramic coatings market can be broken down into four segments by coating technology: thermal spray, PVD (physical vapor deposition), CVD (chemical vapor deposition), and other.

Thermal spray accounted for $935.2 million in 2011 and is expected to reach nearly $1.4 billion in 2016, a CAGR of 7.8 per cent. The PVD segment, worth $208.4 million in 2011, should experience a CAGR of 7.2 per cent to reach $294.6 million in 2016. The CVD segment was worth $207.3 million in 2011 and by 2016 should have a value of $256 million, representing a CAGR of 4.3 per cent. The last segment, made up of other spray techniques or processes, totaled $69.2 million in 2011 and by 2016 should reach a value of $114.8 million, a CAGR of 10.7 per cent.

Surface modification using ceramic coatings has achieved an important place in the industrial environment over the past several decades. High-performance ceramic coatings constitute a mature, but still expanding industry with a broad list of current and potential applications, continuously emerging coating techniques, and a growing list of materials compositions.

This study is directed to the various strata of companies and institutions interested in ceramic coatings, including those involved in developing, manufacturing, and supplying advanced materials; those involved in the development and manufacture of high-performance metallic and ceramic components; suppliers of advanced ceramic powders and components; manufacturers and suppliers of thermal spray, PVD, CVD, and ionic beam and laser beam coating equipment; producers of vacuum equipment; and suppliers of coating consumables. Ceramic coatings constitute a large family of materials with quite diverse compositions and properties. They include compositions based on alumina, alumina–magnesia, chromia, hafnia, silica, silicon carbide, titania and zirconia. Ceramic coatings are generally applied to metal or metallic alloy components or to ceramic components for erosion, corrosion- and high temperature-resistant applications. All ceramic coatings deliver some level of performance in each of the three major areas listed above.

The availability and commercialization of high performance coatings have already changed the internal specification patterns of certain industries. When it comes to high performance coating manufacturing, research and development is ongoing to find environmentally friendly ways to make coatings as strong as possible. ■

American Coatings Show & Conference 2012:

Setting new records

With 427 exhibitors and more than 7,500 overall participants from 69 countries, the third edition of the American Coatings Show & Conference broke all of its previous records for visitors, exhibitors and footprint. The organizers – the American Coatings Association and Vincentz Network – are very pleased that each of the biennial events has increased in attendance, thanks to a simple formula: connecting the world's leading suppliers with the decision makers in the American coatings industry. The presentation of three important industry awards rounded off the most important event around developments in coatings, paints, sealants, construction chemicals, and adhesives in North America.

Exhibitors from 19 countries displayed a comprehensive range of products on more than 91,000 net square feet of exhibit space of all aspects of paint and coating formulation during the Show held from May 8-10, 2012 at the Indiana Convention Center, Indianapolis. Companies from abroad accounted for 35 per cent of the exhibitors, and in addition to the US, leading countries represented at the show included China, Germany, Canada, India, South Korea, United Kingdom, and Turkey.

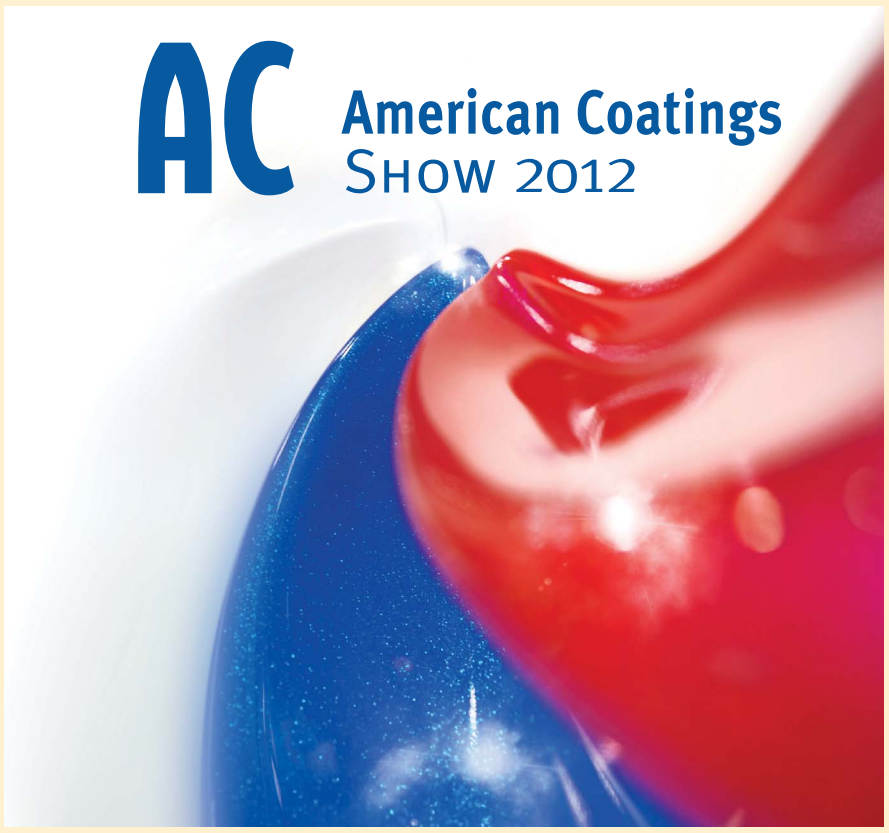
The keynote speakers of the Conference this year emphasized the ties between science and industry at the plenary session. More than 1,000 attendees learned about the most recent research results and industrial developments in 16 thematically structured sessions – among them hot topics like the latest developments in the fascinating world of smart and functional coatings.

The American Coatings Award, presented by the American Coatings Association and Vincentz Network, honors the most outstanding conference paper. This year, Dr. Antony van Dyk of Dow Coating Materials and Dr. Alan Nakatani from The Dow Chemical Company received the award for their paper "Shear Rate Dependent Structure of Polymer Stabilized TiO2 Dispersions.

The Roon Award, sponsored by the Coatings Industry Education Foundation, recognizes exceptional technical papers in the protective coatings field. The first place went to Marshall Ming, Georgia Southern University, for "Smart Coatings for Self-Healing Corrosion Protection", second place to Thomas Nelson, North Dakota State University, for "Catalyzed Crosslinking of Highly-Functional Bio-Based Resins".

Dr. Stuart G. Croll, chair of the Department of Coatings and Polymeric Materials at North Dakota State University, was recognized with the J. Mattiello Memorial Lecture Award for his outstanding contributions to science, technology, and engineering related to the coatings industry.

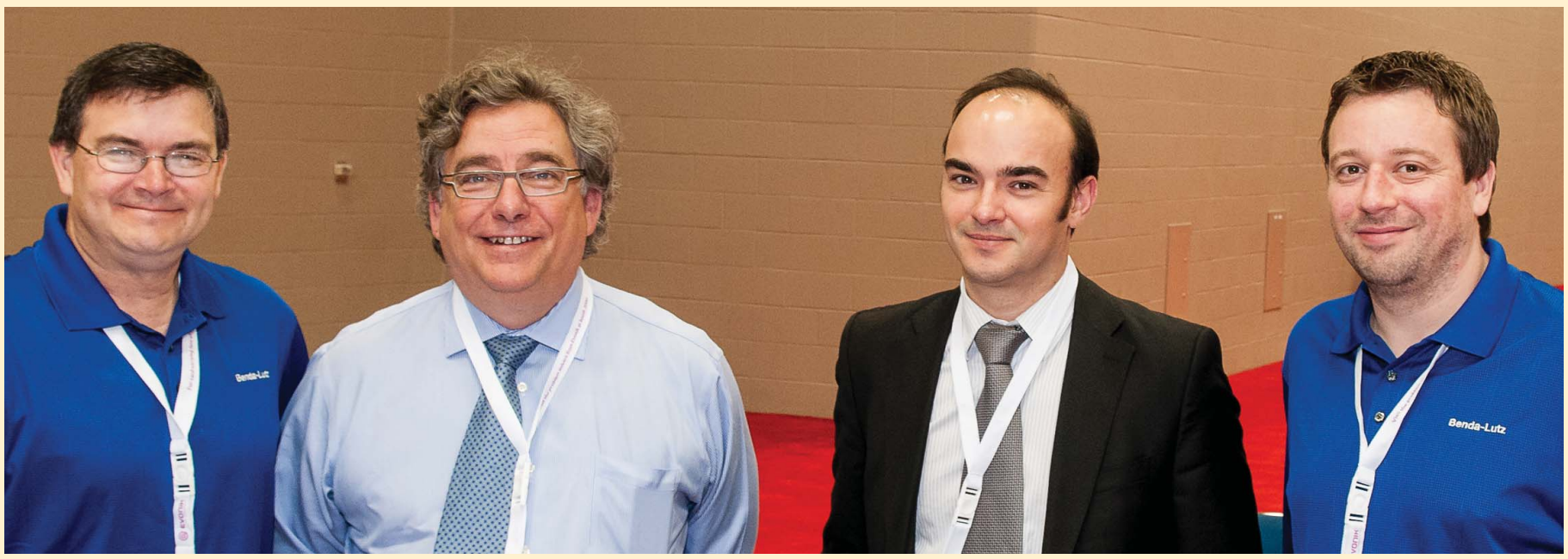
The next regularly scheduled American Coatings Show & Conference will take place on April 7-10, 2014 at the Georgia World Congress Center in Atlanta, GA.



Photos By Pete Wilkinson

Poopak Golesorkhi, Habib Nourmofidi, Hamid Moshari, Soheila Pourhashemi and Roger Learn, Aryachem.

James Andru and Bert Papenburg, Debro; Eric Bos and Nenad Vidonie, Sansin; Paul Proulx and Vernon Lo, Debro and James Mackinnon, Sansin.

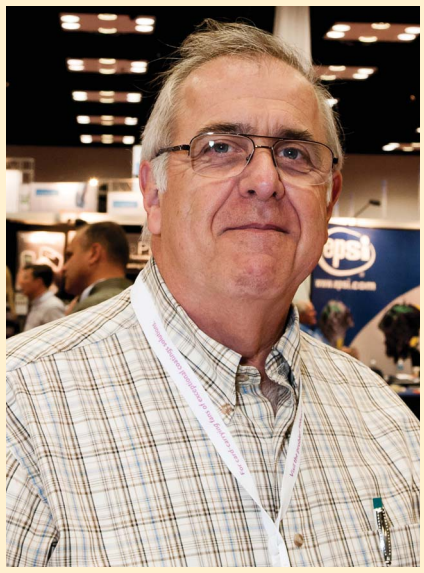


Bill Pofahl, Benda-Lutz Jean-Marc and Jean-Baptiste Morenta, Inortech Chimie, and Walter Sausene, Benda-Lutz.

Gary LeRoux, Canadian Paint and Coating Association.

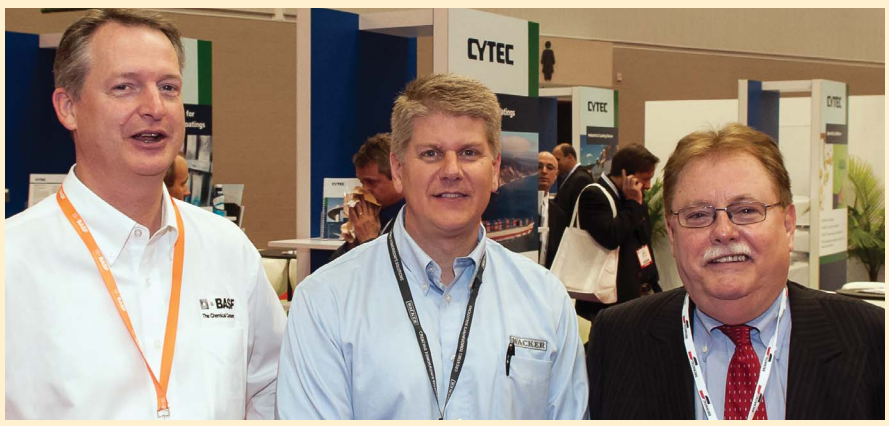
Stephane Pavao, Polyval Coatings.

Kevin Russell, L.V. Lomas.



Bob Tinsley, Cloverdale Paint.

Tina Snider, BASF with Martin Groen i'nt Woud, Lee Doan and Marc Gagnon, Dempsey Corp.



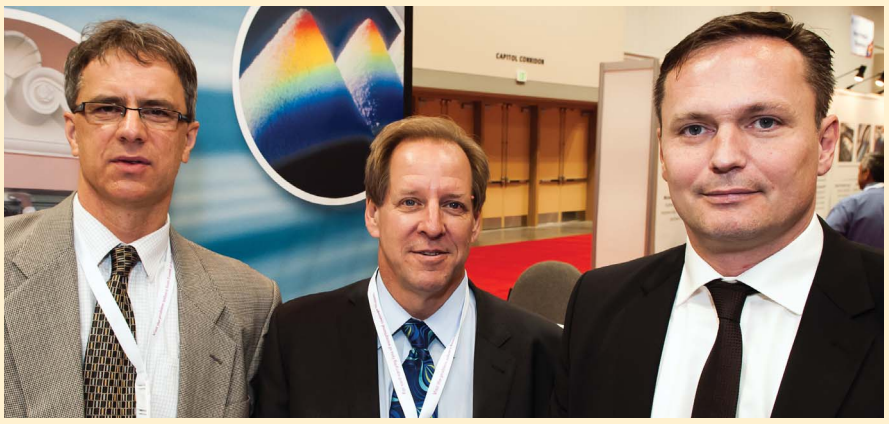
Robin Reinhardt, BASF; Randy Lorenz, Wacker Chemical and Dave Burnside, Brenntag Canada.

John Egoff and Simon Lavallee, Univar.

Steve Valente and Roula Hanna, Kronos.

Kelly Lawrence, Lubrizol and Andres Pugi, Chemroy.

Vernon Lo, Debro, Sonia Renzac and Francine Palmer, Rhodia and Bert Papenburg, Debro.



Joseph Loncar and John Maclean, Northspec Chemicals and Milan Krumbe, Sachtleben.

Paul Lomax and Ron Glaser, Fischer.

Michael Tobin, Cleveland Steel Container.

Guy Primeau and Riki Gogna, Ferguson, with Ed Thompson, L.V. Lomas.

Randal Rogers and Barry Affleck, Protek Paint.

Mike Smith and Mark Vincent, Dominion Color.

David Dorman, AkzoNobel Functional Chemicals, Paul Macko and Jim Biederman, CCC.

Ron Anger, Jim Hachtmann and Walt Conti, Buckman.

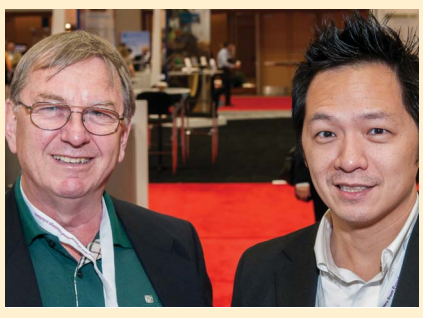
Ziuko Maurovic, John Hurley, Michael Bruce and Bob Hunt, Trinity Resources.

Dennis Houseweart, and Aivars Freidenfelds, ElektroPhysik.

Lean Karmazyn, Polyrheo and Steve Cooper, Alberdingk Boley.

Raymond Nordstrand, Andicor; Craig Baudendistel, Shamrock and John Roeleveld, Andicor.

Bent Jensen, Langguth and Paul Militello, American Colors.



David Daffern and Jason Yee Loy, Trochem International.

Ron Bryon, Simon Lavallee, Karl Semper, Kamlaish Mudhar and Steve Schaffer of Univar Canada.

INNOVATIVE, RESPONSIVE, FLEXIBLE

Lowering volatile organic compound (VOC) levels in architectural and industrial coatings is a key concern in paint and coating manufacturing. Balancing good performance and low VOC is critical.

There are several technologies addressing the issue of lower VOCs, including the use of solventborne coatings with high solids or VOC-exempt solvents (such as acetone or t-butylacetate), powder coatings, and waterborne technologies. Waterborne acrylic latex technology, in particular, offers several advantages such as low toxicity, lower risk of fire from handling flammable solvents, easy one-component use, easy and safe cleanup with water, and less hazardous disposal.

Lowering VOC in a waterborne latex coating would be as simple as lowering polymer glass transition temperature (Tg) or increasing pigment volume concentration (PVC), if there were not also the need to maintain a certain balance of key film properties such as the quality of film formation or film hardness.

"With the continued pressure to reduce VOC (volatile organic content) emissions and enhance performance attributes to match or exceed solvent-based coatings, water-based resins must have higher performance."

THE INNOVATIONS

To meet the increasing environmental awareness and market demand for high-performance hardcoats with low VOCs, Cytec Industries Inc. has unveiled its new UCECOAT 7200 waterborne ultraviolet-curable resin (WBUV) with outstanding hardcoat performance properties and unique high solid content. Cytec's new UCECOAT 7200 is based on a novel, proprietary WBUV technology that enables formulators to develop a solvent-free UV hardcoat for spray application. Its good direct adhesion to plastics makes it a good choice for general industrial plastics application.

Specialty Polymers Inc., distributed by Univar explains that Core Shell type products have been around since the early 1970s as a functional performance product in inks and coatings. They offer performance of two differing resin systems, while capitalizing on the performance attributes of each individual resin system. With the continued pressure to reduce volatile organic compounds (VOC) emissions and enhance performance attributes to match or exceed solvent-based coatings, water-based resins are required to have higher performance.

Recently, Specialty Polymers Inc. has been working on developing a line of products to meet the performance attributes while keeping VOC emissions low. As Specialty Polymers does not currently polymerize polyurethane dispersions or alkyd resins, they can utilize these in their process to manufacture core shell-hybrid resin systems. The new RayCore line of core shell-hybrid type acrylic resins capitalize on material modification to their current acrylics with other materials such

RayCore 9021 on Australian Mesquite

as alkyd resins, polyurethane dispersions (PUD), or other resins such as alkyds.

In the case of the PUD or alkyd technology they utilize the specific resin core, surrounded by a different types of copolymerized resins. This capitalizes on the key attributes of each resin. Performance can be tailored based on either the resin core or the co-polymerization used to create the core.

The company is in the process of readying for launch their line of RayCore acrylic-polyurethane. Their target areas are exterior wood, which require high UV resistance, good water resistance and a very flexible film. The prototype system RayCore 9021 is a 10 C film formation product.

Stained no topcoat

Stained with topcoat

Also, in development is the RayCore acrylic-alkyd resin system. This product finds uses in wood stains due to its low grain raise and provides longer open time due to the alkyd portion. The company will look at this system for exterior deck stains as well. For concrete they are hoping the product can act as a concrete cure membrane. Other areas for this product are glossy sealers for concrete and general metal finishes.

This is brand new technology for the company and they plan to launch in June, 2012.

It is possible to achieve outstanding corrosion resistance for metal surfaces with waterborne paint resins. Kathy Allen, Technology Manager; Margaret Kendi, Associate Research Scientist; and Peter Schmitt, Senior Technology Manager, Coatings, Adhesives, Specialties, all of Bayer MaterialScience LLC, tested the corrosion resistance of metals coated with waterborne paint resins. Schmitt presented their findings, based on the paper "Advances in Waterborne Resins for Metal Coatings with Improved Corrosion Resistance," in New Orleans, as part of the Corrosion session during The Waterborne Symposium 2012. What makes a successful coating for metal worth its mettle? It must adhere to the substrate, withstand weather and prevent corrosion. To ensure a successful coating system, several elements must be considered:

- The coating and surface need to be compatible;
- The substrate must be prepared properly; and
- The coating has to be applied at the proper thickness, in the correct manner and given the appropriate amount of cure time.

Paints based on one-component (1K) waterborne polyurethanes (PUDs) can protect metal surfaces and keep them looking good for an extended period of time. Paints based on 1K PUDs provide outstanding corrosion resistance along with excellent solvent and abrasion resistance.

During the presentation, Schmitt reviewed the chemistry of PUDs, demonstrated the flexibility of PUD technology and the effect of polymer makeup on corrosion resistance. He also discussed the testing done on 1K waterborne polyurethane and waterborne polyacrylate resins on metal after a variety of pre-treatments with and without a primer.

"Two-component waterborne polyurethane studies showed that good corrosion resistance can be achieved with the proper choice of co-reactants when these systems are applied directly on treated steel panels," says Schmitt, who points out that the formulations with the highest crosslink density provide the best corrosion resistance.

Furthermore, testing showed waterborne polyurethane formulations without primer can provide a better combination of adhesion, humidity resistance and corrosion resistance than the other commercially available systems that were tested. The authors discovered that waterborne polyacrylates provide inferior corrosion-resistance properties when compared with polyurethane resins. However, their testing showed it is possible to protect metal surfaces using a blend of polyurethane and polyacrylate but at least 50 per cent of the formulation must be polyurethane to achieve good corrosion-resistance properties.

Innovative, responsive and flexible are the attributes that resin manufacturers keep in mind when creating waterborne solutions. ■

Companies mentioned in this article can be contacted at:
www.cytec.com
www.specpoly.com
www.materialscience.bayer.com

PAINT AND COATINGS INDUSTRY IS SERIOUS

About Responsible Stewardship

By Gary LeRoux

The concept of product stewardship has been around for a long time with prominent organizations like the Organization for Cooperation and Economic Development (OECD) and the Brundtland Commission defining what it means and encouraging industry to respond. Across the world industry has responded and none more intently than the paint and coatings sector in Canada with a paint recycling program in British Columbia since 1994. The founder of Cloverdale Paint, Wink Vogel, was instrumental in creating that program in BC under Product Care. He was recognized for his pioneering efforts by the CPCA at its annual conference in Montreal in 2010. Currently there are a number of paint recycling programs across Canada and soon all Provinces will have such a program. Surprisingly, there is no such program in Europe and it's only just beginning in the United States. The American Coatings Association has just started a program that replicates Canada's lead with two states engaged in paint recycling programs modeled after the BC program.

The paint and coatings sector is now fully engaged in responsible product stewardship programs in all ten Provinces. Product Care has been active on this front in BC since 1994 with great success and positive public support. Product Care has led the way in BC and several other Provinces. Eco Peinture continues to operate a hugely successful program in Quebec. Furthermore, experience in BC and Quebec has shown that responsible waste diversion can be done well and at a reasonable cost to both the brand owner and more importantly the consumer.

In the Province of Ontario Waste Diversion Ontario (WDO) and Stewardship Ontario (SO) were created by the provincial government. Since its inception it has been struggling to address municipal and household hazardous waste (MHSW). So is the industry funded organization charged with implementing the program on behalf of stewards. Ontario government policy and regulations have needlessly hampered effective waste diversion programs for MHSW. The paint and coatings sector continues to fully comply with the various regulations in all Provinces, as required under the unique regimes in each Province. However, the Ontario experience has been a sore point for stewards since the beginning and recent events have only made things worse.

Continued unilateral actions taken by the Ministry of Environment in Ontario has upset all industry sectors involved in the MHSW program. The 8 industry sectors participating in the program were shocked when the MOE moved on February 9 to amend the Waste Diversion Act without consulting industry. It should be noted that the paint and coatings sector currently represents 40 percent of the MHSW program in Ontario. Stewards were shocked by this kind of heavy-handed treatment by the MOE. The paint and coatings sector, the brand owners (manufacturers, distributors and retailers), have embraced responsible waste diversion across Canada with resounding success. This has also been the case in Ontario with recent evidence showing the sector exceeding diversion targets by more than 160 percent. However, the politics around the program has led to acrimony, incrimination, frustration and all leading to increased costs for stewards and the consumer.

Along with other Associations, CPCA formally expressed its disappointment directly to the Minister and noted the fact that the amendment goes against its own 'Ontario Regulatory Policy', reaffirmed on April 1, 2010, which states that, "Proposed regulatory amendments or new regulations that are considered to affect business are required to be posted for consultation purposes for a mandatory 45-day period." Further, one of the key principles of the Ontario Government's regulatory policy is, "transparency and

Newfoundland's Stewardship Board Launches Paint Recycling Program

Commercial painters, consumers, businesses and the government in Newfoundland/Labrador will now be able to recycle old, unwanted paint through a new Provincial Paint Recycling Program financed by paint manufacturers and run by the Multi-Materials Stewardship Board (MMSB).

All paints, including interior and exterior latex, enamel and oil-based consumer paints, deck coatings and floor paints, varnishes and concrete and masonry paints, along with the product cans, are accepted through the program.

The MMSB says that since paint manufacturers have assumed a leadership role in the handling of the end-of-life treatment of their products they will increasingly continue to think about ways to redesign their products to be more environmentally friendly, more cost efficient and easier to recycle. The MMSB is currently working on other industry-led programs.

The Product Care Association is the industry-appointed organization responsible for establishing, collecting and managing leftover paint in Newfoundland and Labrador.

The MMSB estimated that by the end of 2013, there will be a total of 51 collection sites established throughout the province. *www.productcare.org/nl.*

The MMSB supports modern waste management practices in the province, with a particular focus on waste diversion, recycling and public education, in order to ensure a clean and healthy environment throughout the province. It is a Crown agency that reports to the Minister of Environment and Conservation.

GETTING IN THE LOOP WITH RECYCLED PAINT

Right now, in garages, attics and basements there are millions of gallons of unused paint. Every year Ontarians generate enough leftovers to paint 80,000 two-storey homes. Loop is the recycled paint brand of waste collector and recycler Photech Environmental Solutions located in St. Catharines, ON. The company works with Stewardship Ontario and industrial partners to reduce and ultimately eliminate Ontario's waste paint.

The large American chain Walmart has fully embraced Loop's commitment to quality, value and environmental stewardship and plans were underway to launch the brand in Canada's Walmart stores mid-May.

The company feels they are changing the Ontario paint industry forever. "We work with government and industry to maximize paint diversion from landfill and incineration and instead re-process waste paint into a premium recycled paint," states Photech's web site.

They call Loop a new approach to paint.

"We salvage leftover paint from Ontario's basements and garages and recycle it into gorgeous new colors. Because we sort out inferior paints first, only the best paint brands make it into Loop. And just to be extra sure, a third-party lab tests the quality of our paints before they hit the shelves."

Loop, is designed to provide the quality and features of a high-end paint in areas of consistency, coverage, and durability, for less.

Promotions

The company has set up the Loop neighbour-to-neighbour paint exchange forum.

Photech's commitment to the environment goes a step farther than just recycling paint. For every gallon of Loop paint sold Photech will plant a tree in Haiti.

The company has also embarked on a promotion by which Southern Ontario consumers can tell them their story about an interesting paint project and they could get all the paint needed from Loop for free.

The Process

Paint is collected through partners such as Stewardship Ontario and then sorted by type, color and quality. From there consistent colors are created and then the paint is tested for quality according to industry standards such as sag, opacity, coverage, and durability. Every batch must have a small portion of new material such as color pigment to ensure quality and consistency. This re-processed paint is then packaged and delivered to retailer's province-wide.

Since Loop is unused paint, left over from homeowners' projects around the province it is still very useable.

Loop paint undergoes stringent in-house and third party quality controls. No inferior paint makes it into the Loop. "Before we start mixing Loop paint, we sort and separate our stock according to quality. We sell the lower-grade paint at reduced prices to discounters and exporters. We then recycle paint from the famous brands to create our Loop paint. Because only better paints make it into the mix, Loop's overall paint quality —including coverage, sag, opacity, and durability — is comparable to mid-range paint," states the company.

Here are the ways Loop is different:

- Not all paint makes it as Loop paint
- Better-than-price quality means high customer value
- Quality assured by in-house and independent laboratory tests
- Tree planted for every gallon sold
- Interactive designer showcase
- Neighbor-to-neighbor paint exchange forum
- Rescued cleaners product line

The company is currently shipping its beta version of paint in color batches, but is still a couple of months away from gallon cans and the colour matched paint program.

What about VOC's?

From a Volatile Organic Compound (VOC) perspective, old paint is actually less harmful than new paint. As with new carpet or wood floor refinishing, the harmful gasses emitted from some paint decreases over time.

As the only household-to-retail paint program in Ontario, Photech's mission is to divert as much paint from landfill and incineration as possible by delivering a high-quality recycled paint that offers homeowners all the features they normally expect, but at a lower price than high-end paints.

For more information: Loop and Photech Environmental Solutions, 600 Read Road, St. Catharines, ON, L2R 7K6 Canada, info@looppaint.ca, 877-938-9465.

Photech Environmental Solutions is a privately owned industrial and residential waste management and environmental services company. Photech works with industry leaders in the automotive, printing, cleaners/solvents, and general manufacturing as well as school boards, municipalities and provinces to provide environmental products and services. Photech provides products such as its exclusive waste packaging and services which range from tanker transport to small lab packs to training and rapid response.

consultation requirements for proposed regulations.'' This is reinforced with very strong principles in cases where proposed regulations and related amendments impact business in Ontario. But, nothing of the sort occurred in this case and industry was negatively impacted.

Unfortunately, industry could do little to effect meaningful change to the proposed amendment as there was no opportunity to comment, as is the case in most jurisdictions, including at the federal government level. Not only did the MOE's amendment usher in a new approach to the way the MHSW program operates, it also required industry to cover any deficits that accrued under the pervious program. Deficits did occur because in the past stewards were not permitted to increase fees charged to cover all program costs. This occurred despite repeated requests by Stewardship Ontario to have the fees increased. They were denied by the MOE's or the Waste Diversion Ontario, which are one and the same organization, in effect. The MOE is funded by the taxpayer and the WDO is completely funded by industry stewards. This has left industry stewards asking the question: Is this any way to run a business? Is this any way for a government to encourage private sector investment and at the same time commit to responsible waste diversion in the Province?

Fundamental principles of effective stewardship are long lasting and primary among them is controlling costs for the brand owner and being fully transparent with the costs of the program. One of the key elements for an effective waste diversion programs is a visible fee on all product sales. Visible fees have the effect of ensuring transparency, providing a level playing field in the industry and, most importantly, it keeps the fees lower for the consumer as there are no markups along the supply chain. A visible fee has been applied in the tire and electronics sector for years. It has served both sectors well helping them to communicate the benefits of the program to the public. In fact, empirical evidence has proven that a visible fee has the effect of reducing such a fee by half. This is the most desirable outcome for the consumer.

Extended Producer Responsibility (EPR) is a concept that is supported by both industry and government. What is needed now is practical consensus on a workable definition. Industry assumes financial responsibility for waste diversion, but operation of the program is left to an Industry Funding Organization in Ontario, at least for the paint and coatings sector in Ontario. This has created a situation wherein there is financial responsibility without influence or control on how the money is spent in the program. It has been said that this is similar to taxation, which clearly is not the intent of EPR. In Ontario it can be argued that even the IFO does not have as much control over program implementation given the fact that it requires the sanction of the WDO/MOE with respect to critical program elements. Until this is resolved there will be little chance of complete operational success for the MHSW program in Ontario.

The paint and coatings industry will continue to focus on responsible stewardship, but it must find a way to get the right program in all Provinces. There have been many lessons learned in the sector over the past 15 years in Canada. In the coming days CPCA will consult with its members and successful operators across the country to determine the best way forward. As noted at the outset, arguably the paint and coatings sector has proven its stern commitment to responsible waste diversion and this will not change. What needs to change is the patchwork of policies and programs across the country that does not serve the best interests of the industry or the consumer. That is not good business. We need to find a best practice for waste diversion for MHSW and apply it nationally. ■

Gary LeRoux is the president of the Canadian Paint and Coatings Association.

NEW PRODUCTS AND TECHNOLOGIES

Huntsman Pigment Offers Solar Reflectance in Wide Color Range

The Pigments division of Huntsman Corp. has launched ALTIRIS, a solar-reflective pigment that can be used to produce coatings and polymer products in a wide range of colors.

Apparently the pigment can increase solar reflectance by more than 100 per cent in some color ranges, even in dark and black colors. The reflectance property also can contribute to product lifespan, as coatings that stay cooler are degraded less by heat-cycling stresses that cause delamination and peeling.

www.huntsman/pigments

Troy's New Preservatives

Troy Corporation and its Polyphase preservatives address cost, performance, and environmental attributes. Troy offers Polyphase 663, 678 and 2085 new-generation preservatives. They feature broad-spectrum protection, highly effective performance at low use levels, preferred toxicology profiles, and zero- or low-VOC chemistry. Polyphase 663 provides extremely durable protection in exterior applications; Polyphase 678 offers excellent performance for interior applications, including fungal organisms of health concern; and Polyphase 2085 is designed for use in wood protective coatings.

Mergal K12N and 758 are zero-VOC multi-active preservatives offer both short-term control of contamination and long-term protection. Mergal 530 is a unique, fast-acting sanitizer engineered to deliver remediation of contaminated raw materials. Mergal MC14 is a formaldehyde-free, highly efficient wet-state preservative that exhibits broad-spectrum efficacy against bacteria, fungi, and yeast.

Troy offers an advanced wet-state technical support service called the Troy Microbial Management Advantage (TMMA) that consists of a plant audit and a customized treatment and prevention program, including preservative recommendations and use level/cost optimization, supported by comprehensive microbiological testing.

Troy offers its Z-line of Multifunctional Additives, comprised of innovative products that are free of VOCs, HAPs, and APE. New are Troysol Z370 universal wetting and mar and slip additive; Troysol Z372, universal mar & slip additive; and Troysol Z377, acrylic flow additive for solvent systems.

Troy has introduced Troykyd D742 & D745, two new defoamers that eliminate macro- and micro-foam, enhance surface appearance, and offer performance at low use levels.

Troy also introduces Powdermate 550DG, a versatile degassing additive for thermoset powder coatings.

www.troy.com

Specialty Solid Epoxy Resin

Dow Coating Materials Maintenance & Protective Applications has introduced OUDRATough HPC 104 Specialty Solid Epoxy Resin is designed for fusion bonded epoxy (FBE) powder coatings used on pipelines and related equipment. Based on proprietary self assembling toughening technology, this new technology facilitates the formulation of corrosion resistant dual layer FBE coatings capable of withstanding extreme transportation and installation conditions. This new level of performance allows pipeline owners to reduce the maintenance cost associated with mechanical damage of FBE coatings by enhancing abrasion resistance overcoat (ARO) flexibility and subzero temperature, as well as impact and gouge resistance.

OUDRAThermTM HPC 6508 and 6510 Solid Epoxy Resins are designed for fusion bonded epoxy (FBE) powder coatings used on pipelines and related equipment. Made using advanced molecular modeling and experimental techniques, these new polymers facilitate the formulation of corrosion resistant coatings capable of withstanding extreme temperatures and conditions. This new level of performance is designed to help companies exploit new deeper oil and gas reservoirs and untap their potential.

The OUDRASperse and OUDRACure WB (waterborne) series offers a systems approach to coatings that facilitates tailored applications in even the most extreme environments. These waterborne dispersions and curing agents are manufactured without any added solvents. The solvent-free nature of the OUDRASperse WB Dispersion can help the formulator address stringent VOC regulations, including ultra-low VOC formulations, in the development of high performance coatings.
OUDRASperse WB

OUDRACool HPC 6615 Specialty Solid Epoxy Resin is designed for low application temperature fusion bonded epoxy (FBE) powder coatings for corrosion protection pipelines. Properly formulated, OUDRACool HPC 6615 in combination with OUDRACure HPC 90 Curing Agent can develop properties equivalent to standard FBE when applied at temperatures as low as 170°C. Remarkably, the curing schedule of low application temperature FBE based on OUDRACool HPC 6615 is equivalent to standard FBE applied in temperatures as high as 240°C. This new level of performance helps pipeline owners protect pipelines made of high tensile steel from corrosion without compromising the integrity of the alloy. In addition, it facilitates energy savings to pipe coaters that use this technology on conventional steel pipes.

Calendar of Industry Events 2012

June 5, 2012: TOSCOT / OPA Golf Tournament, Glen Eagle Golf Club, Bolton, ON. *www.toscot.org*

June 6-8, 2012: Canadian Association of Chemical Distributors' (CACD) 26th Annual General Meeting, Whistler BC. Online registration at *www.cacd.ca/agm*

June 11-13, 2012: SURFIN Las Vegas, NV, *www.nasf.org*

June 27, 2012: OPCA Golf Classic 2012 11:00 am registration and lunch, 1:30 Scramble Start. Angus Glen Golf Club, 10080 Kennedy Road, Markham, ON, susan.fitzpatrick@opcatrusted.ca

September 15-17, 2012: CPCA Annual Conference and AGM, Vancouver, BC, *www.cdnpaint.org*

October 9-11, 2012: Coating 2012, St. Louis, MO, *www.thenaicoatingshow.com*

November 12-14, 2012: FABTECH, Las Vegas, NV, *www.sme.org*

Versatile New Michem Emulsion Polyamide Dispersion

Michelman's new Michem Emulsion D310 is a multi-purpose aqueous dispersion of a high melt polyamide that exhibits a unique set of surface modification qualities. The versatile nylon dispersion features a small particle size and produces excellent toughness and abrasion resistance, especially in high temperature applications. It has excellent film forming and heat sealing properties with high slip and a low coefficient of friction (COF).

Michem Emulsion D310 is an adaptable solution for paint and coating manufacturers working on surface modification formulas for applications on nylon, rubber, metal, leather and plastic substrates.

www.michelman.com

MacDermid – High Performance Chloride Zinc

Metex Rack Stripper SS-20 is a process designed to electrochemically dissolve and remove nickel, copper and other plated metals from various types of stainless steel rack tips (Type 304SS can be attacked and should not be used for rack tips). Metex Rack Stripper SS-20 is a mildly acidic, pH 6 to 7 solution. Nickel and/or copper are removed by electrolytic dissolution and drop out of the solution on the tank bottom as the metallic sludge. Thin chromium deposits about .0001 inch (.25 micrometers) thick are removed by dissolving the underlying nickel and/or copper. Chromium metallic particles fall to the tank bottom and accumulate in the sludge.

Kenlevel Ultra represents MacDermid's latest innovation in chloride zinc plating. It can be used for both barrel and rack applications in full potassium, low and full ammonia formulations. Key Features

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- Lower operating cost
- Low foaming, allows higher air agitation
- No oil out issues
- Temperature tolerant up to 120oF+

www.macdermid.com

Dow Epoxy Curing Agents

Dow Epoxy, a business unit of The Dow Chemical Company has introduced a broad portfolio of epoxy products designed for the civil engineering industry, featuring new, high-performance D.E.H. curing agents. The company's expanded portfolio includes epoxy components, specialty resins and curing agents, as well as resin blends and formulated hardener solutions to meet specific application requirements. The addition of these products increases the company's ability to help offer epoxy solutions to meet specific formulation, application and end-use performance needs. The products, which came to Dow through the acquisition of European curing agent producer UPPC GmbH, have a proven performance record throughout Europe.

Dow Epoxy said its line includes products for the civil engineering industry in such applications as concrete primers, self-leveling flooring, trowelable flooring, industrial flooring, grouts and mortars, concrete crack repair, and coatings for secondary containment. Specialty offerings in the expanded epoxy portfolio include low-emission and waterborne curing agents. The innovative, low-emission series curing agents facilitate low Volatile Organic Compound (VOC) formulations and low odor.

www.dow.com.

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