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On the Cover: Max Mignon, Finish Pro Paints sprays a wood cabinet panel.

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from the **EDITOR**

The Usefulness of Trade Shows

This is being written a few days before I head to Indianapolis for the 2017 Powder Coating Technical Conference. It's one of several such events that CFCM attends each year, to greet companies that already know us, and to learn about industry newcomers or new technologies.

There was a time, a few years ago, when trade shows and conferences were predicted to die. Certainly there are people who won't bother attending them any more, saying they find all they need online.

But shows, like print magazines, which are also supposedly antiquated, still have a role to play. Online publications and news sites have taken over part of both activities' function, but suppliers still find it useful to trek down with their folding booths, a stack of product literature and maybe some samples to put on display.

One of the problems with the online experience is that it's been oversold. I say that as someone who, like most of you, spends much of his working day buried in email, checking websites for company and product information, or, in my own case, updating a website for this publication. But nothing is quite as useful at a face-to-face encounter at a trade show or conference.

There's a lot of talk about artificial intelligence, which is not at all the same thing as ultra-fast computing. And a lot of what I read sounds like it's about ultra-efficient computing, but not actual 'intelligence.' Human intelligence doesn't process a stream of information, it processes multiple streams of different kinds of information. We pick up on each other's verbal clues such as a shift of pitch or a change of expression, which might indicate a need to remain quiet about confidential information, or a desire to share more if there's interest from the person listening. In my case, since editors can never know enough about the industries we cover, there usually is.

It just isn't possible to glean the same depth of information, or develop understanding, via a webinar, however useful those are for companies with small travel budgets.

An industry isn't just a collection of buyers and sellers. It's a community, and it's healthier and more prosperous when it has communal events for sharing news and ideas. Shows will change, but the opportunity for personal encounters is something that should never be undersold.

Now, if someone could only figure out how to prevent us becoming footsore after spending all day on our feet.

Edward Mason
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AkzoNobel Rejects PPG Buyout

AkzoNobel has rejected a buyout bid from PPG Industries. The Dutch-owned chemicals company said it is now exploring the possibility of spinning off one of its business units.

The offer, which AkzoNobel says was unsolicited, non-binding and conditional, was worth 54 euros cash, or about C\$77, plus 0.3 PPG shares per AkzoNobel share. AkzoNobel says that would make the offer equivalent to 83 euros per share. The deal overall would have been valued at about C\$30-billion.

According to the most recent published sales figures, PPG is the largest coatings manufacturer in the world, and AkzoNobel the second-largest. PPG bought AkzoNobel's decorative paints business in 2013 for more than \$1-billion. This included the Glidden brand of paint.

"The unsolicited proposal we received from PPG substantially undervalues our company and contains serious risks and uncertainties," said AkzoNobel CEO Ton Buchner (pictured) in a company statement. "The proposal is not in the interest of AkzoNobel's stakeholders, including its shareholders, customers and employees, and we have unanimously rejected it."

PPG responded that it had made an "attractive and comprehensive" offer, and would "carefully evaluate and consider its position and path forward related to its proposal."

"PPG has long admired AkzoNobel's business, global presence, culture and principles as well as its advances in innovative product development and sustainable business practices," said PPG chairman and CEO Michael McGarry. "We believe a combination of our two companies is a very compelling strategic opportunity."

AkzoNobel's Specialty Chemicals portfolio includes polymer chemistry products, ethylene- and sulfur-based products, bleaching and oxidizing chemicals, surface chemistry products and salt-chlorine products, among other materials. Its products are marketed under brands including Akucell, Broxo and Butanox. The separation of Specialty Chemicals, the company says, would "allow the Specialty Chemicals business to continue to build and accelerate its market-leading positions across a range of market segments." The Specialty Chemicals business had 4.8-billion euros in revenue in 2016.

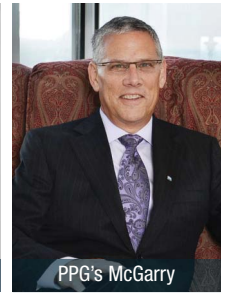
"We are reviewing strategic options to separate it from the company to create focus for both Specialty Chemicals and the Decorative Paints and Performance Coatings group, allowing them

to build further on their respective leadership positions," Buchner said.

PPG reported US\$14.75-billion in revenue last year. Its Performance Coatings segment accounted for 58 percent of sales; Industrial Coatings accounted for 39 percent, and glass, which the company has been selling off in recent years in order to focus on coatings, accounted for three percent.



AkzoNobel's Buchner



PPG's McGarry

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The Chemetall team accepts its award from Airbus.



Chemetall Wins Airbus Award

Chemetall, which became a global business unit of BASF Coatings in December, has been honored with the highest supplier award in the Airbus Material & Parts SQIP (Supply Chain & Quality Improvement Program). For the third year in a row, the company has achieved this Accredited Supplier status, which values Chemetall's outstanding performance and continuous commitment to provide top quality products and excellent delivery reliability. Only

four out of a total of 68 strategic key suppliers of Airbus have received this award for 2016.

"We are very proud to having met the high Airbus SQIP requirements once again in 2016," said Hendrik Becker, who is responsible for Chemetall's Global Aerospace Segment. "Our customer can rely on the ongoing commitment of the Chemetall team to maintain our excellent quality and performance standard and to accompany the Airbus growth strategy."

His colleague Ronald Hendriks, quality

manager and SQIP coordinator, added: "Last year, our experts Kirstin Uhl and Ulrich Eberhardt conducted three Lean Six Sigma projects together with Airbus. These projects contributed significantly to our success: we strengthened and optimized our internal and external delivery performance along the value chain and expanded our production capacity at the Langelsheim plant in Germany. We are delighted about this highest supplier award from Airbus because it acknowledges the continuous efforts of the Chemetall staff."

The aim of the SQIP program is to advance the major strategic Airbus suppliers towards the goal of industrial excellence with regard to product quality and delivery reliability. In view of increasing production rates, this goal is of particular importance. Every year, the performance of each participating supplier is reviewed and either confirmed or – in case of non-conformity with the requested quality standards – downgraded or even rejected.

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OPCA Night at the Races

The Ontario Painting Contractors Association is holding its 24th annual Night at the Races on Friday, March 31. It is being held at the Woodbine Racetrack in northwest Toronto. The gates open at 6.30 pm, and Post Time is 7.30.

Included in the OPA package for attendees is a \$20 betting voucher, admission to the Woodbine Club (fourth floor), and buffet service from the seasonal menu of cold selections and salads, hot entrees and soup. Members are encouraged to bring friends, customers, suppliers and colleagues, to make up a table of four, six or eight members.

The cost is \$70 per person before March 20, and \$80 after that. Online registration can be done at: <https://events.r20.constantcontact.com/register/eventReg?oeidk=a07edtx0yapf034d697&oseq=&c=&ch=>

CPC Takes on Iwata Line

Canadian Precision Coatings Inc. (CPC) is the new, official importer of all Iwata, EMM (Colad), and RTi products in Canada. It will also be distributing some additional supplies and accessories complementary to these lines.

The headquarters is at 414B 36 Ave SE, Calgary, AB, T2G 1W4. Tel: 587-320-6140, or 800-206-7815; fax: 587-320-6141. It is establishing a network of sales representatives across Canada.

Perstorp Sells Plant to Synthomer

Specialty chemicals supplier Perstorp Holding AB has announced the sale of its paint and coatings additives facility at Ghent, Belgium to Synthomer plc. The stated sale price is €78 million, subject to certain adjustments. The divestment is in line with Perstorp's strategy to focus on and expand its core chemicals activities.

Perstorp Belgium manufactures and markets a range of performance additives to a global customer base across a number of end-markets including paints and coatings, and plastics. The business employs 41 employees at its Ghent facility, who will all be transferred with the business.

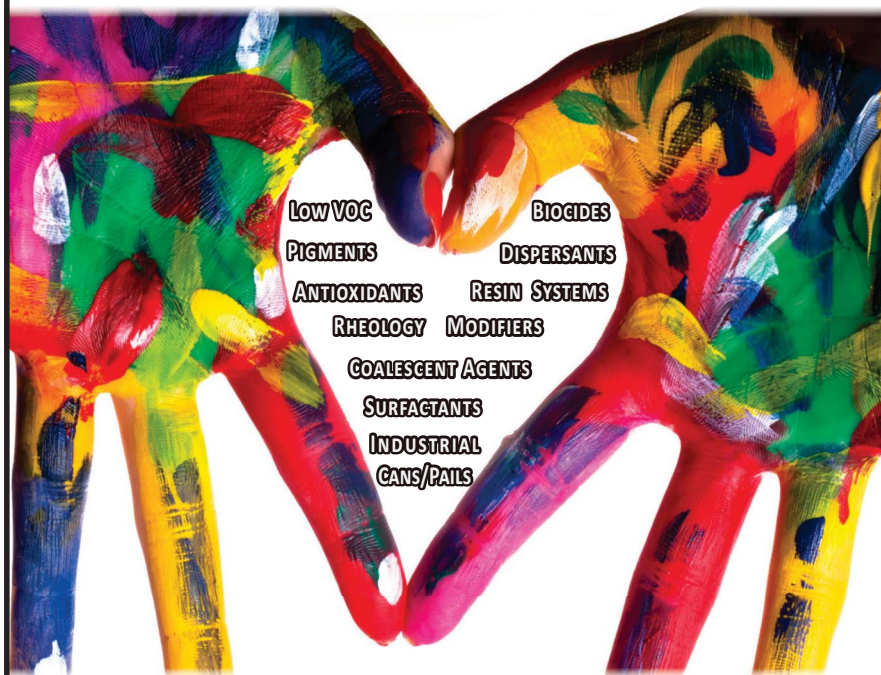
In the year to 31 December 2016, Perstorp Belgium generated earnings before interest and tax of €8 million. At 31 December 2016, Perstorp Belgium had gross assets of €21 million. The transaction represented a multiple of about nine times the 2016 EBITDA.

"The sale of Perstorp Belgium creates very good shareholder value," says Perstorp President & CEO Jan Secher, "and is a natural step in our strategy of focusing on growing our core technology platforms. The transaction provides Perstorp Belgium and its employees with an opportunity to develop further within Synthomer."

Sun Chemical Buys RJA Dispersions

Sun Chemical Corp. has acquired the assets and business of RJA Dispersions LLC, effective March 1. Based in Hudson, WI, RJA Dispersions is a producer of ultra-fine particle and pigment disper-

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sions for the digital inks market. Primarily used for energy cure (UV), eco-solvent and aqueous inkjet inks, RJA's full range of dispersions will join Sun Chemical Performance Pigments' diverse product lineup.

"RJA Dispersions is a technology-based company with an excellent reputation for its innovative, high-quality and cutting-edge

specialty dispersions for the rapidly growing digital market," said Myron Petrich, president of Sun Chemical Performance Pigments and executive officer of Sun Chemical's parent company, DIC Corp. "This is an excellent bolt-on acquisition for our global pigments business and will immediately expand our product offerings for this growing market segment. This acquisition

supports our strategy of continuing to expand our global pigments business into sustainable high growth, high value product lines and markets."

RJA Dispersions will become part of Sun Chemical's Performance Pigments' digital business unit, led by Peter O'Loughlin. As the director of digital, O'Loughlin will lead the RJA Dispersions integration and be responsible for the global growth of the combined product portfolio of this business unit.

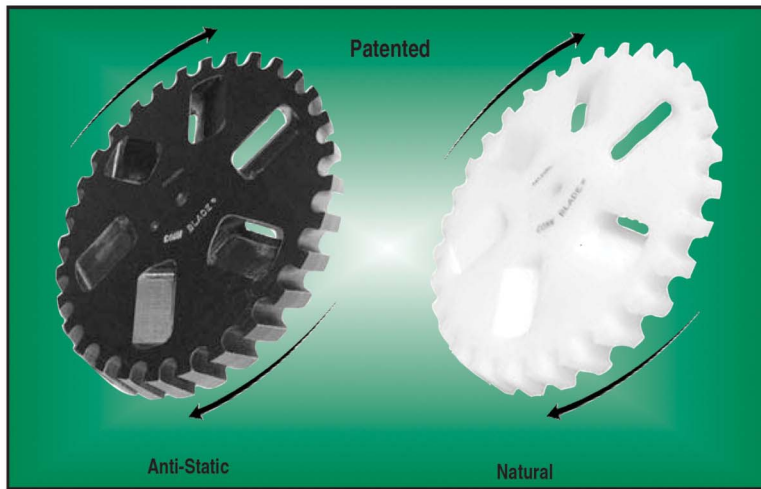
Sun Chemical, a member of the DIC group, is a producer of printing inks, coatings and supplies, pigments, polymers, liquid compounds, solid compounds, and application materials. Together with DIC, Sun Chemical has annual sales of more than \$7.5-billion and over 20,000 employees supporting customers around the world.

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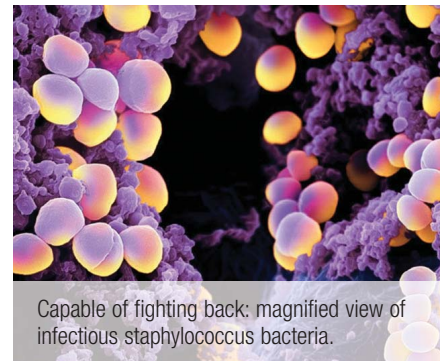
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3



Warning Issued on Antimicrobials



Capable of fighting back: magnified view of infectious staphylococcus bacteria.

Paints, flooring, door knobs and other building products made with antimicrobial additives could enable proliferation of so-called "super bugs" and their use should be approached with skepticism, according to a new white paper by a US consulting firm.

Global research-driven architecture firm Perkins + Will along with the nonprofit Health Building Network conclude that antimicrobial building products "marketed as healthy or beneficial to human health contain ingredients that may have adverse environmental or human health impacts, and alternative products should be considered whenever possible."

Their 42-page report, titled "Healthy Environments: Understanding Antimicrobial Ingredients in Building Materials," was published recently.

The paper says that while building products with antimicrobial additives are relatively new to the marketplace, their recent surge in popularity has been driven by manufacturers "looking to

differentiate themselves and tap into consumer demand for healthy products and healthy building environments.”

“What consumers don’t realize is that the federal government considers antimicrobials pesticides because they are agents used to kill or control living organisms—and they should therefore be used with great care,” states Suzanne Drake, a senior interior designer at Perkins + Will and a co-author of the paper.

In the US, the Centers for Disease Control and Prevention and the Food and Drug Administration have both concluded that there is no evidence that antimicrobial additives provide an added benefit, even in hospitals, the paper indicates.

“The fact is, there’s zero evidence that antimicrobial additives provide a health benefit,” Drake says. The paper’s authors say the widespread use of such products may actually contribute to the formation and spread of illness-causing germs that no longer respond to medical treatment: the so-called super bugs. Further, they note a lack of transparency when it comes to advertising products containing antimicrobial additives, “even

when you examine a Health Product Declaration or third-party certificate.”

“Ideally, manufacturers would clearly disclose when antimicrobials are added to building products, the specific additives used, and their purpose within the product,” according to the paper.

“Until this is standard practice, the designer’s best course of action is to educate clients interested in antimicrobial products, and explain why they may want to be avoided.”

Perkins + Will has added products marketed as antimicrobial to its list of substances of concern that are generally to be avoided.

Dempsey Promotes Cross-Canada Seminars

Once again, Dempsey Corp. is offering its Cross-Canada Seminar tour this summer. The event includes presentations from a range of the companies Dempsey represents, and provides and introduction to the various product lines, for customers wanting to know more about items they already purchase, or who want to source new materials and technologies.

The first stop on the tour, in suburban Mon-

tréal, is in Laval, QC, on Monday, June 5, at the Sheraton Laval Hotel. This includes two separate events, on coatings and on plastics. A day later, the corresponding Toronto seminars will be held at the Hilton Garden Hotel in Mississauga, ON.

The next stop is the Grand Winnipeg Airport Hotel in Winnipeg, on June 7. The fourth and final event is at the Radisson Hotel in Richmond, BC, close to Vancouver Airport, on June 8. Both these events are for the coatings industry solely.

Further information is available from the company at www.dempseycorporation.com.

IHEA 2017 Fall Seminars Set for Greenville, South Carolina

The Industrial Heating Equipment Association (IHEA) will hold its 2017 Fall Seminars at the Westin Poinsett Hotel in Greenville, SC, on September 19 and 20.

IHEA’s 48th Annual Combustion Seminar and its annual Safety Standards and Codes Seminar will take place over both days. IHEA’s Induction Seminar will be a half-day event on Tuesday afternoon, September 19. Attendees to all events will enjoy access to IHEA’s Tabletop Exhibition and

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PCI's 2017 Board of Directors take a break during the first board meeting of the year. Pictured from left to right: Kevin Coursin, Steve Kiefer, Mark Mortensen, Greg Dawson, Trena Benson, PCI Executive Director; Ron Cudzilo, John Sudges, Chris Merritt, John Cole, Craig Dietz, Paul West. Not pictured: Suresh Patel.

PCI Names New Officers

The Powder Coating Institute has announced its slate of officers and board of directors for 2017. The officers are: president, Ron Cudzilo, George Koch Sons; vice-president, Chris Merritt, Gema USA; secretary/treasurer, Greg Dawson, Nordson Corp.; past president, John Sudges, Midwest Finishing Systems.

Serving on the Board of Directors for 2017 are: John Cole, president, Parker Ionics; Kevin Coursin, president, Engineered Finishing Systems; Craig Dietz, product manager, Axalta Coating Systems; Steve Kiefer, powder coatings business director, Powder Coatings N.A., AkzoNobel Coatings Inc.; Mark Mortensen, president, All-Color Powder Coating, Inc.; Suresh Patel, business manager, general industry, Chemetall US Inc.; Paul West,

director of marketing, Sun Polymers International Inc.; and PCI legal counsel, David Goch, partner, Webster, Chamberlain & Bean.

PCI executive director Trena Benson remarked, "We welcome our two new board members for 2017, Kevin Coursin, Engineered Finishing Systems, and Mark Mortensen, All-Color Powder Coating. They both bring a wealth of experience and passion to our efforts. We are appreciative of the entire board, the face of PCI, for their dedication not only to PCI, but the industry as a whole."

PCI is a non-profit technical and professional association that provides information and education on powder coating technologies worldwide.



IHEA fall seminars offer classroom instruction for people in the thermprocess industry.

Reception on the afternoon of September 19th.

"We are excited to return to Greenville, SC, with our fall seminars and tabletop exhibition," said IHEA executive vice-president, Anne Goyer. "With the Southeast's strong manufacturing base, we have a very high interest in our sem-

inars. This was evident when the seminars sold out the last time we held them in this area. Past attendees always tell us the information they receive at our seminars is very educational and helpful to their operations."

The Combustion Seminar features industry professionals from leading heat processing companies who deliver pertinent information in combustion technologies. The comprehensive Safety Standards and Codes Seminar covers critical safety information for those involved with a wide range of industrial thermprocess applications.

IHEA's Safety Seminar speakers have a first-hand working knowledge in the development of the NFPA 86 standard. IHEA's newly developed Induction Division has created a concise, half-day seminar that highlights the basics of induction technology, the applications and equipment

used, along with the advantages of induction for improving plant operations. These classes offer a mix of technical information and the opportunity to attend the tabletop exhibit to interact with speakers and suppliers of the products and services discussed throughout all three seminars.

The Big Paint Job Still Awaits

If and when it is built, the Gordie Howe Bridge linking Windsor, ON, with Detroit will be one of the biggest paint jobs Canada has seen in years. However, its progress has been slowed by legal actions by Manuel 'Matty' Moroun, the owner of the existing Ambassador Bridge that links the two cities.

Moroun has launched numerous legal challenges to the Gordie Howe project, named for the late Canadian hockey player, which would be built about two miles south of the Ambassador. It



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PAINT & COATINGS NEWS

HUBER BUYS MARTINSWERK FR MATERIALS
J.M. Huber Corp., through its Huber Engineered Materials division, has acquired the Martinswerk business of Albermarle Corp.
MORE

FUTURE BECKONS SMART COATINGS
Smart coatings, the multi-functional materials, are set to take over various markets and market niches currently dominated by more conventional coatings materials, says a new report.
MORE

FINISHING NEWS

CCAI OPENS SCHOLARSHIP PROGRAM
The Chemical Coaters Association International is now accepting applications for the 2016 Matt Heuertz Scholarship.
MORE

ELCOMETER CONSOLIDATES MANUFACTURING IN UK
Ecometer, which supplies coating inspection, physical test equipment and ultrasonic NDT products, has decided to consolidate the Group's European manufacturing and CNC machining operations in Manchester, UK.
MORE

NEW PRODUCTS

BENCHTOP SPECTROPHOTOMETERS
Datacolor has released its 850 and 550 spectrophotometers.
MORE

TESLA NANOCOATINGS DEVELOPS WET-ON-WET PROCESS
Tesla NanoCoatings has announced development of a breakthrough wet-on-wet application process for Tesla primer and topcoats, a step it says strengthens the company's position in carbon nanotube corrosion-protection technology.
MORE

PEOPLE

OMNOVA SOLUTIONS NAMES GENERAL MANAGER
Thomas Hartle has joined Omnova Solutions Inc. as general manager, specialty coatings & ingredients (SC&I).
MORE

PPG NAMES SLATE OF VICE-PRESIDENTS
PPG Industries is making a group of executive appointments, effective March 1.
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Still the only bridge in town ... the Ambassador Bridge links Detroit and Windsor, ON.

would be a public bridge, run by a Canadian crown corporation, whereas the Ambassador is run privately by Moroun's Detroit International Bridge Co. The Ambassador is currently the busiest border crossing between the US and Canada in terms of trade volume.

The latest blow to Moroun's efforts came in early March, when Judge Robert Colombo Jr., of the Wayne County Circuit Court, denied his request to stop condemnation proceedings on

property he owns that is in the way of the proposed bridge. Moroun owns a total of 17 properties in the immediate area, including a trucking depot, and can appeal the decision.

In addition to the motion to stop the condemnation, Moroun filed suit in January against Michigan Governor Rick Snyder, accusing him of circumventing the Michigan legislature in arrangements made with the Canadian government related to the Gordie Howe. That suit is still pending.

Previously, Maroun filed numerous suits, most revolving around claims that arrangements between US and Canadian officials had been in violation of various laws. A suit that claimed that federal approval of the bridge was unconstitutional was rejected by a US federal judge January.

The 87-year-old Ambassador Bridge has been subject to scrutiny over its safety and soundness. Last year Canadian officials said barriers that were in place for repairs were insufficient to stop a car from falling off. In 2012, Moroun and Detroit International official Dan Stamper were jailed a dispute with Michigan officials over the construction of ramps to and from the Bridge.

Chromaflo Buys Elementis Line

Chromaflo Technologies Corp. has concluded a purchase agreement with Elementis Specialties, Inc. whereby Chromaflo Technologies Corp. has acquired the Elementis Tint-Ayd line of colorant products and select Dapro driers supplied from the US. The acquisition of the product line became effective March 17, 2017. The purchase price was not disclosed.

"The acquisition of these products from Elementis Specialties is consistent with our efforts in supplying quality colorants and additives for high performance industrial coatings and architectural paints in the Americas' markets and beyond," said Scott Becker, president and CEO of Chromaflo Technologies Corp. "The Tint-Ayd line of colorant products and Dapro driers fit well with our existing lines, increasing customers' options in support of these industries."

Chromaflo claims to be the largest independent global supplier of advanced colorants and chemical dispersions for the paint, coatings and thermoset plastics industries.

Production of the acquired products will be moved from Elementis Specialties' Jersey City, NJ,

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facility to Chromaflo Technologies' North American manufacturing plants.

"This acquisition is important to us and we plan to make this a smooth transition for customers," added Brij Mohal, managing director and vice-president – Americas. "Quality products, speed of delivery, and related support will be at the high level of service our customers have come to expect."

Chromaflo Technologies is a major independent global supplier of colorant systems, chemical and pigment dispersions, serving customers in architectural and industrial coatings as well as the thermoset composites market. Headquartered in Ashtabula, Ohio, U.S., Chromaflo has production facilities in the US, Canada, The Netherlands, Finland, Australia, South Africa, India, and China.

PEOPLE

Troy Corp. Names Executive VP



W. Brian Smith

Troy Corp. has named W. Brian Smith to the position of executive vice-president and chief operating officer, effective immediately. In his new role, Smith will be responsible for ensuring operational excellence throughout the organization, including technical, sales, and service functions worldwide. This appointment reflects the company's commitment to growth and expansion into new markets.

"I am honored to take on this new role, and look forward to partnering with senior management to expand Troy's business and more importantly, to continue to focus on delivering high quality products, service, and value to our customers," says Smith. A Troy employee since 1995, he has held various leadership positions within the company, most recently that of vice-president.

His initiatives began with a focus on internal line-function efficiency and later on driving strategic growth. Smith played an instrumental role in Troy's recent acquisition of the Ashland Industrial Biocides business. He has over 20 years of management experience in the specialty chemicals industry, as well as a deep understanding of the marketplace.

"Troy will continue to position itself as a global leader in biocides and performance additives as we accelerate expansion efforts around the world," continues Smith. "Our dedication to innovation, technology, and customer service will continue."

Stone-Tucker Appoints Technical Salesperson

Stone-Tucker Instruments has named Tyler Heywood to its technical sales team. He brings over 15 years' experience in the protective coatings industry to his new position, including technical sales with major coatings manufacturer, and coatings inspection, failure analysis, specification writing, and coatings system development for Heywood Innovative Solutions. His qualifications include NACE Level 3 Coatings Inspector Certification, MPI Architectural Coatings Technologist, and SSPC-PCI Level 3.

Heywood has provided inspection and consultation services for a variety of applications in the architectural, commercial, and industrial coatings industries, including infrastructure (bridges, water towers, water/waste water) oil and gas, and pipeline industries. His knowledge of diverse industry requirements as well as a variety of protective coatings, the company says, means he will be able to supply customers with excellent customer service and product support based on his understanding of their particular needs.

Andicor Appoints Market Manager

Jamie Dinsmore has been appointed to the newly created position of market manager, CASE (Coatings, Adhesives, Sealants and Elastomers) for Andicor Specialty Chemicals. In this new role, he will have overall responsibility for advancing Andicor's focus on one of its core markets across Canada.

As well as maintaining his existing responsibilities for sales in Ontario, Jamie he work with regional managers and supplier partners to develop and implement Andicor's strategy for growth in CASE. His strong technical ability and responsiveness to customer needs, the company says, make him ideally suited to assume this new challenge.

Calendar of Industry Events

March 27-31, 2017: Powder Coating 2017 Technical Conference, JW Marriott Hotel, Indianapolis, IN.
www.powdercoating.org/PowderCoating2017.

March 31: Ontario Painting Contractors Association Night at the Races, at Woodbine Racetrack, Toronto.
<https://events.r20.constantcontact.com/register/eventReg?oeidk=a07edtx0yapf034d697&oseq=&c=&ch=>

April 4-6, 2017: European Coatings Show, Exhibition Centre in Nuremberg, Germany.
www.nuernbergmesse-north-america.com

May 15-17, 2017: Eastern Coatings Show, Harrah's Resort, Atlantic City, NJ.
www.easterncoatingsshow.com

May 24-25, 2017: Canadian Paint & Coatings Association, 104th Annual Conference and AGM, InterContinental Hotel, Saint Antoine Ouest, Montreal.
www.canpaint.com

June 5-8: Dempsey Corp. cross-Canada seminars, in Laval QC, Mississauga, ON, Winnipeg and Richmond, BC.
www.dempseycorp.com

June 19-21, 2017: SurFin 2017, Georgia World Congress Center, Atlanta, GA.
www.natsurfin.com

November 2-4, 2017: WMS 2015, the Woodworking Machinery & Supply Expo, International Centre, Toronto,
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Update on Recent Developments

BY GARY LEROUX

Canada Forges Ahead With Circular Economy

Product stewardship is a fundamental feature of sustainable development and as such CPCA and its members are committed to paint stewardship with recycling programs in every province of Canada. In 2015 alone, the industry recovered 27-million kilograms of leftover paint. This commitment is critical to a circular economy approach, which aims to reduce and eliminate waste through the improved design of products and the services employed for recovery and recycling. The Canadian industry has long operated under this concept with a world-leading model for leftover paint recycling.

Product Care is the program operator for leftover paint in Ontario under the Paint and Coatings Industry Stewardship Plan (ISP), a program that has met or exceeded recycling targets in the province under the MHSW program since its launch. The industry has clearly proven its commitment to stewardship with producers funding 100 percent of the cost of leftover paint recycling across Canada. Part of this commitment includes support for all efforts to increase resource recovery effectively and efficiently.

Ontario Releases Final Strategy for Waste-free Ontario

Keeping an eye on developments related to the circular economy, CPCA advised members in early March of Ontario's Ministry of the Environment and Climate Change release of the final "Strategy for Waste-free Ontario: Building a Circular Economy." This strategy serves as a roadmap for resource recovery and waste reduction, specifically targeting a zero-waste future for the province.

The provincial government says waste diversion in Ontario has stalled around 25 percent over the last decade, noting however that the residential sector is responsible for the positive results in recent years. CPCA informed members of the strategy's four main objectives: 1) enhance provincial direction and oversight; 2) enable efficient and effective recovery systems; 3) increase waste reduction and improve resource productivity; and 4) create conditions for sustainable end markets. The challenge will be for the new legislation to achieve better results while not increasing the overall costs of recovery and recycling for the consumer, as there is only one payer: the customer.

In February, prior to this release, CPCA filed a submission with recommendations on the Ontario government's "Proposed Strategy for a Waste-free Ontario: Building the Circular Economy." With regard to the Oversight Authority, CPCA proposed the introduction of sound governance principles to

ensure independent deliberation and non-political decision-making, given the fact that the Authority is "not an agent of the Crown" but effectively operates as one by virtue of the governance structure. Without board independence in its decision-making, the governance structure leads all stakeholders to view the Minister as the one responsible for all decisions, good or bad, and thus the government would have to accept that there will be constant lobbying by stakeholders. The consumer/taxpayer would also view all decisions and related outcomes as decisions made by the provincial government, not the Authority's.

Concerning the strategy's view that behavioural change is difficult to regulate and thus could be costly, CPCA proposed that increased education and awareness not increase costs substantially because such costs are integral to the program operator's business plans.

CPCA also proposed that a forum be established between the Authority, the Minister and obligated stewards to achieve the objectives set out in the strategy. This is particularly important for data collection to ensure the obligated stewards and the consumer or taxpayer are not forced to incur increased costs. The association proposed that the adoption and promotion of standards would also result in more effective resource recovery. Further, CPCA recommended that implementation of modern regulatory approaches would increase efficiencies, lower overall costs and help retain manufacturing jobs in Ontario.

Chemicals Management Plan Report

One of the key initiatives under Canada's Chemicals Management Plan is the rapid screening of substances considered to be of low concern with respect to toxicity. This approach uses qualitative and quantitative steps to determine whether a substance could cause harm. The government proceeded with the rapid screening of as many as 61 polymers and 612 substances in the second half of 2016. The government appears to be on schedule with respect to the publication timeline for the third phase of CMP substances, as it recently published draft screening assessment reports for several groupings (e.g., short chain alkanes and ethylene glycol ethers grouping), expected during the winter season. Regarding implications for the paint, coatings and adhesive sector, CPCA has developed a questionnaire to identify the substances implicated in the coatings sector with respect to the 1,550 substances contained in CMP-3. The association collected data from members until the end of February and con-

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firmed with the government the “current” use (at any level) of nearly 400 substances contained in all CMP-3 groupings, many of them being classified as Type 3. Type 3 is an approach used to address substances using a standard risk assessment approach that considers both hazard and exposure, for either the ecological and/or health assessment, in more detail.

The additional proactive information collected by the CPCA Paint and Coatings Working Group will provide further insight on the commercial status of paint and adhesive-related substances and help account for market fluctuations from year to year. Furthermore, it will help the government develop risk assessment and management strategies that will fully consider input from the coatings industry wherever polymers or substances require a decision on toxicity and any particular risk management action for the sector.

Inventory Update 3

In January, Environment and Climate Change Canada issued a Notice under section 71 of the Canadian Environmental Protection Act (1999) targeting roughly 1,550 chemicals and polymers as part of this year’s Inventory Update to the Domestic Substances List. This is the third inventory update since 2009. In late January, CPCA issued a bulletin alerting paint, coatings and adhesive manufacturers that they must report on IU 3 updates via the established Single Window only. As well, information must be submitted no later than mid-July including the use of substances or polymers found on the Domestic Substances List, the Non-Domestic Substances List, and the In-Commerce List. The association encouraged members to take part in a series of government multi-stakeholder workshops in February and webinars in March in support of their submissions. The list of 1,500 substances for the

inventory update (IU 3) substances will help inform the government on the next phase of CMP (CMP-Phase 4). The government is currently relying on the ongoing online voluntary information gathering with respect to CMP-3 substances, including polymer, in order to stay informed and current with respect to market fluctuations related to these substances.

Regarding the Non-Domestic Substances List (NDSL), the federal government is developing a revised guidance that will include significant changes from the previous guidance as well as all advisory notes delivered to date. It has only incorporated about 60 per cent of the recommendations issued by industry. Environment and Climate Change Canada plans to publish and defer the remainder of industry recommendations to a later revision.

Useful Recognition of Multiple CAS RNs

The issue of multiple Chemical Abstracts Service Registry Numbers (CAS RNs) is common to both the Domestic Substances List and the Non-Domestic Substances List and is also being tied to the assessment of unknown or variable compositions, complex reaction products and biological materials (UVCBs). Alternatively, there are market substances covered with multiple CAS RNs and single CAS RNs covering multiple ‘different’ substances. The same substance or polymer can indeed be given different names and therefore different CAS RNs.

There are few options for the government to recognize the existence of multiple CAS RNs at the present time, except via the publication of waivers. Industry as a whole believes that recognizing multiple CAS RNs could be a useful amendment to CEPA, which is currently being reviewed by the Parliamentary Standing Committee on Environment and Sustainable Development. CPCA supports further technical work be done to ensure the multiple CAS RN issue is resolved.

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Quick Reference on Risk Management Actions

CPCA also advised members in a bulletin published on March 1 of the federal government's recent summary of all risk management actions since the CMP's launch. These actions address the risks from substances concluded to be toxic in the period 2006–2016 under CEPA. The association developed a summary list of all the CMP risk management actions for substances listed under the Challenge and Non-Challenge initiatives as well as remaining priorities, which is available for members' use as a quick reference.

With regard to an update on Phase 2 of the CMP, both Environment and Climate Change Canada and Health Canada are on track to publish the remaining reports on certain substances during this fiscal year. CPCA learned that the Ministries compiled data sheets containing non-Confidential Business Information collected under the Section 71 notices during the second phase. They also collected every survey conducted under the Substance Grouping Initiative, launched by the government in 2010 to assess and manage the potential health and ecological risks associated with nine groupings of substances.

Regarding a Section 71 Notice related to asbestos, CPCA asked the government to clarify reporting obligations with regard to asbestos and asbestos-containing products, including the manufacture, use, sale and offer for sale, import and export. The association then advised members that related regulations are due for publication later this year. CPCA will continue to support and update members on these important developments.

Members were informed that the government will publish an updated rolling plan spreadsheet regarding Phase 3 of the CMP. This third and final phase focuses on the remaining 1,550 priority chemicals out of the initial 4,300 chemicals identified as priorities during the categorization process. The government expects to address these chemicals by 2020.

The association also advised members that Health Canada unveiled a new schedule for information gathering under CMP-Phase 3. Specifically, the Ministry's 2017 assessment work plan and related schedule will allow stakeholders to submit additional information on a specific list of CMP-Phase 3 substances regarding health concerns. This information will complement the data already compiled from the Inventory Update 2 of the Domestic Substances List. CPCA provided members with details on this schedule in a members' only bulletin.

While the government and industry are currently dealing with Phase 3 of the CMP, the government is already starting to think about chemicals to consider beyond 2020 and CMP-3. CPCA informed members that Ottawa is calling on the industry to provide suggestions on how Phase 4 should unfold and it is critical that industry provide input on this initiative.

The federal government plans to move forward with the prioritization work of 53 confirmed nanomaterials divided in 16 groups. Of the 53, only 17 seem to overlap with the current priorities for the CMP. The two Ministries have said they will



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probably not separate the assessment for health from ecological concerns. The government plans to unveil a work plan in 2018 that will identify the remaining gaps to be subject to voluntary information gathering. With regard to the 600 polymers under CMP-3, particularly those that are unknown or with variable compositions, complex reaction products and biological materials (UVCBs), the industry plans to propose that a science approach for these polymers be developed.

For new substances CPCA noted that industry recommended all risk assessment summaries for substances on the Non-Domestic Substance List be tied to the list's search engine. When it comes to Chemical Abstracts Service Registry Numbers (CAS RNs) for the Domestic Substances List government officials said they would address the issue of multiple CAS RNs for the same substance. The view is that a more accelerated process should be adopted for adding multiple CAS RNs to the list. The CAS Registry currently identifies more than 100 million organic and inorganic substances and 66 million protein and DNA sequences. Roughly 15,000 new substances are added to the registry every day.

The association continues to promote compliance with the Code of Practice for DEGME among architectural paint manufacturer members. A declaration must be submitted before the deadline in early spring of 2017. CPCA reminds members and non-members of their obligation vis-à-vis the code, notifying the federal government of its efforts on this front.

The association first advised members that the government published a final code of practice for DEGME in early November, targeting a concentration limit of less than one percent w/w DEGME in consumer products that are surface coating materials. It should be noted, however, that the existing Significant New Activity (SNAc) provisions for DEGME have yet to be amended. The association also provided information on who should submit a declaration with respect to the use or import of DEGME in products. CPCA continues to help members in their ongoing effort to comply with the Code. All non-members must do likewise.

GHS Update: Health Canada Says No New Tools

The risk of accidental exposure to hazardous chemicals due to non-standardized product labelling was one of the reasons behind the UN's decision to create a Globally Harmonized System for Classification and Labelling of Chemicals for products used in the workplace. As part of Canada's Workplace Hazardous Materials Information System (WHMIS) 2015 training, all provinces, territories and regions must comply with a common set of labelling and classification requirements for products containing hazardous chemicals.

At the top of Health Canada's technical guidance document is occupational health and safety. CPCA also provides regular updates for its own complementary technical guidance FAQ document to help members obtain further clarification on the Hazardous Products Regulations and achieve full compliance in their WHMIS 2015 conversion. CPCA recently

advised members that Health Canada confirmed it will not develop tools or mechanisms to alleviate labour intensive work that is required in order to comply with Significant New Data (SND) provisions under WHMIS 2015. Under the SND requirements, suppliers and importers are allowed a 90-day period to update safety data sheets with any new data and 180 days to update labels.

If a hazardous product is sold or imported within 90 days after significant new data becomes available, the significant new data is not required to be included on the safety data sheet as long as a written notice providing the new data and the date upon which it became available is transmitted to the purchaser of the product, or obtained or prepared where the product is imported. The same applies to labels, except that the corresponding period of time is 180 days.

There are no similar requirements in the United States. It should be noted that the SND requirements in Canada present significant difficulties to importers, especially when the supply chain is complex. CPCA has stressed this inherent challenge many times to the federal government, requesting that tools be developed or referenced so as to assist industry in this regard.

Reinstatement of Old CBI Concentration Range Uses in WHMIS 2015 Proposed

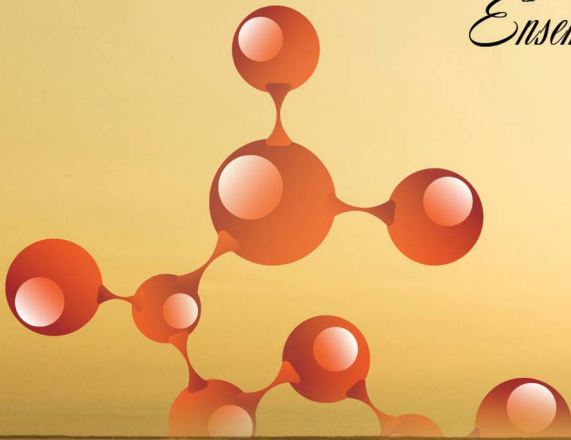
In February, CPCA participated in a WHMIS Current Issues Committee (CIC) meeting where an industry proposal aiming to reinstate the use of concentration ranges for CBI protection, similar to the old WHMIS 1988 ranges under the Workplace Hazardous Materials Information System 2015, was revised and formally submitted to Health Canada officials. The industry proposal must be approved by Health Canada CIC officials as well as by labour organizations and provincial/territorial organizations also sitting on the CIC committee before it can be formally adopted.

CPCA's Health, Safety and Environment Committee, for its part, discussed the related industry proposal and considered the likelihood that such a proposal might be approved early and that it might lead to early acceptance of CBI ranges or some sort of notice of intent by Health Canada before the first WHMIS 2015 deadline for manufacturers/importers.

According to industry CIC representatives, broad ranges may not lead to over-classification or misperception of hazards in products by users as long as Section 4.4. of the Hazardous Products Regulations does not need to be applied for the classification of hazards for CBI protection, and as long as the use of broad ranges for CBI protection is clearly mentioned in Section 3 of the SDS. In this case, any user would not be expected to align these CBI ranges with any of the usual GHS hazard thresholds/cut-offs. Since the submission of the industry proposal, labour groups drafted a summary of their concerns and the CIC industry representatives prepared a response to labour groups. Health Canada has formed a CIC subcommittee working group to further discuss the matter

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and seek to reach a consensus on this proposal. Health Canada CIC officials will then issue final recommendations to senior management, who in turn will decide on the course of any Hazardous Product Regulations amendment to follow and what the process might be for early implementation or acceptance of CBI concentration ranges.

VOCs in the Spotlight

CPCA members were informed that Ottawa plans to reassess current VOC emissions originating from the use of architectural paint and coatings products. The reason for this reassessment is due to increasing national pressure to see VOC emissions reduced even further. Specifically, by further aligning with other US jurisdictions in the coming years, Canada will succeed in achieving overall national VOC reduction targets.

The Ozone Transport Commission (OTC) and the state of California have amended their VOC architectural coatings limits since Canada published its architectural and automotive regulations in 2009, and stricter US standards have been adopted by states in the northeast and the Great Lakes region. For instance, by adopting the revised OTC Model Rule (OTC II), an estimated additional reduction of one kiloton could be attained.*

It is important to note, however, that the coatings industry has had tremendous success in delivering significant reduc-

tions in VOC emissions far higher than expected: 75 per cent compared to the projected 26 percent expected by federal officials after the implementation of the regulations in 2009. It is without a doubt a sustainability success story for the paint and coatings sector in Canada.

In another development, the association cautioned members to be mindful of their low-to-zero VOC claims on their paint and adhesives products and to review the Canadian guidelines. This is particularly important following the Competition Bureau's recent caution to industry with respect to "greenwashing" or false environmental claims for products, which is against the law.

CPCA reported earlier this year that it is reviewing the impact of a newly proposed residential indoor air quality guideline for acetaldehyde, a substance the government considers to be toxic. However, there is considerable uncertainty as to the actual risk of cancer. Members were informed that the federal government reviewed the scientific data that gave high priority for a complete risk assessment and for the development of a Residential Indoor Air Quality Guideline. ■

** Note: Detailed data and analysis on these items is posted on www.canpaint.com for Members only.*

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While they can sometimes replace existing types of fillers, a key virtue of nanoparticles is that they modify the behavior of coatings in new ways, or modify the actions of particular ingredients. Significant increases in the properties of paints or other coatings can result.

A report published in January by the UK's Future Markets Inc. notes that "incorporation of nanomaterials into thin films, coatings and surfaces leads to new functionalities, completely innovative characteristics and the possibility to achieve multi-functional coatings and smart coatings. The use of nanomaterials also results in performance enhancements in wear, corrosion-wear, fatigue and corrosion resistant coatings."

Nano-based materials have also led to 'smart' coatings, which can respond to changing environmental or production conditions. It notes:

"Smart coatings are coating systems that are capable of responding dynamically to external changes in their environment. These types of coatings elicit a sensory response to environmental stimuli such as changes in temperature or current and respond accordingly.

"Although smart coatings are not new, the growing development of nanotechnology and advanced materials has opened new avenues for multi-functional coatings that sense and react to stress, pressure, corrosion, radiation and biological stimuli. The incorporation of multifunctional, smart nanofillers to polymer matrix results in a range of unique properties.

Examples of smart coatings include stimuli responsive, conductive, self-healing, and super hydrophobic systems."

BASF has made extensive investment in nanomaterials. Company technical specialist Ziniu Yu has recently been involved in a project to evaluate its product Laromer PO 9026, a 100 percent solid polyether acrylate resin with 50 percent nano-scale silica, for the formulation of radiation-curable coatings for various coating applications. Silica is a hard mineral, with a Mohs hardness of 7.

"By incorporating nanoscale silica into the coating," Ziniu says, "the silica present in the surface layer of the coating enhances both the scratch and mar resistance. In addition, the particles with nanoscale size do not scatter light which allow the nano-silica be able to use in clear coat application. Another advantage of this approach is, the reactivity of the resins

will not be affected by the blended nano-silica."

One particular area of interest for developers of nanomaterials for coatings is repelling certain kinds of marine life. German researchers at the Johannes Gutenberg University Mainz (JGU), have developed a method that, they say, reliably hinders hazardous seawater fouling. They describe it as effective, affordable and easy on the environment.

Fouling can occur as a result of the growth of bacteria, algae or mollusks in harbor facilities, on boat hulls and aquaculture netting. The resultant damage and consequential costs can be significant: up to an estimated t\$200-billion annually in the shipping industry alone.

Protective coatings applied to vessels usually contain copper-based biocides. These have the disadvantage that they harm the environment, while marine life-forms can develop resistance to them. Some countries, including Canada and Denmark, have imposed strict limitations on the use of copper-based anti-fouling coatings.

To find an alternative, a research team led by Prof. Wolfgang Tremel of JGU's Institute of Inorganic Chemistry and Analytical Chemistry, simulated a defense mechanism employed by algae, and established that cerium dioxide nanoparticles can effectively prevent algae fouling. This discovery could contribute to the development of new protective coatings that are much less environmentally harmful than the hull coatings in use now.

Marine algae utilize secondary metabolic products to provide themselves with a form of chemical defense against microorganisms and predators. These halogenated secondary metabolites specifically prevent bacterial biofilms, other algae, and even barnacles from becoming attached to and developing on larger formations of algae, sponges and other creatures.

Halogenated compounds produced by the red seaweed *Delisea pulchra*, for instance, inhibit bacterial fouling but are neither toxic nor growth retarding. Instead, they scupper what is known as 'quorum sensing,' a system used by bacteria to communicate with the help of messenger substances that results in the formation of biofilms. Structures of the halogenated compounds synthesized by seaweeds are similar to those of these substances, so they cause a blockade of the bacterial receptors and suppress the switchover of bacterial gene regulation to biofilm formation.

This form of interference with bacterial gene regulation is also of pharmaceutical interest as it is known that pathogenic

bacteria can protect themselves against attack by the immune system and the effect of antibiotics by forming biofilms, for instance on the epithelium of the respiratory system. The Mainz-based team used nanoparticles of cerium dioxide to mimic this natural defense process.

“Field tests have shown,” Tremel says, “that cerium dioxide is an ecologically acceptable alternative to cuprite, a substance that is used as a biocide together with copper thiocyanate and copper pyridine at concentrations of up to 50 percent in anti-fouling coatings.”

“Modern catalytic converters in vehicles use cerium dioxide,” adds Karoline Herget, who wrote her doctoral thesis on the project. “It is non-toxic and chemically extremely stable.” She is convinced that cerium dioxide is a practical and cost-effective alternative to conventional biocides.

Cerium dioxide is an oxide of the rare earth element cerium, and a byproduct of the process of extraction of rare earth metals. Despite belonging to the family of rare earth elements, cerium itself is not particularly scarce. Its cost is comparable with that of cuprite (copper oxide), although it is effective in far lower quantities.

“What we have here,” Herget adds, “is an environmentally compatible component of a new generation of anti-fouling coatings that simulate the natural defense systems employed by marine organisms. What is important is that it is effective

not only under laboratory conditions but also when actually used in the aquatic environment.”

Steel panels with cerium oxide coatings can be exposed to seawater for weeks on end without becoming covered by bacteria, algae, mollusks or barnacles. Reference samples with conventional water-based coatings develop massive fouling over the same time period.

Biofilms are found virtually everywhere. They are present in drinking water pipes and clarification plants, in ground water, water filtration and cooling systems, on practically all surfaces such as food packaging, door handles, push buttons, keyboards, and other elements made of plastic, and, when it comes to medicine, they also develop in catheter tubes.

The research project was undertaken in cooperation with BASF, and the results have been published in the journal *Advanced Materials*.

Obstacles still remain to wide acceptance of nanomaterials. There are various unknowns regarding how they affect the environment when they break down, and economies of scale have not yet arrived for all types.

But as the technologies evolve, and there is more understanding of their potential, nanocoatings will be expanding into markets that are still under-exploited at the present time. If your company has not yet explored what they might do, now is the time to remedy that oversight. ■



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The Wide World of Polyurethanes

POLYURETHANES (PURs) are among the most versatile polymers we use, and new types for coatings continue to arrive on the scene. Floor coatings are a major area of use, where PURs' durability and scuff resistance means they don't need frequent refurbishing or replacing. And there are many other applications where their special properties, and resistance to chemical attack, play a key role.

Alberdingk Boley, Inc. has a new amine-free PUR dispersion for zero-VOC, water-based industrial coatings. This, the company says, features high surface hardness, and excellent chemical resistance achieved through self-crosslinking.

It offers neutral wood warming, excellent film build and excellent abrasion resistance. Suggested fields of application include furniture coatings, wood floor coatings, low emission coatings, and DIY lacquers.

Volatile amines have a significant impact on emissions and indoor air quality. They can be highly flammable, as well as harmful and toxic to the skin and eyes. UAF 850 has been developed as a dispersion that complies with regulatory requirements on amine emissions.

"This amine-free PUR," the company states, "matches high performance with sustainability, enabling the formulator to meet regulatory requirements without compromising key performance properties."

Rhino Linings Corp., which manufacturers and distribute sprayed on protective linings and coatings, has released an addition to its growing line of industrial grade protective linings. HiChem 11 70 is a two component, 100 percent solids, zero VOC polyurethane lining, and is claimed to be the company's most chemically resistant product to date.

The protective lining provides, the company says, excellent stability for immersion applications and where high levels of chemical resistance are required to deliver superior corrosion protection. In addition to its chemical resistance, HiChem meets NSF Standard 61 requirements for use in potable water storage tanks of five gallons and larger, or pipelines with 0.75 in. or greater pipe diameter.



Spraying Rhino Linings' Hi-Chem 11-70 into a frac tank.

"Our new industrial grade chemical resistant coating is ideal for businesses looking to extend the life of company equipment and facilities while meeting stringent federal containment regulations concerning waste management and safety storage of hazardous materials," says Pierre Gagnon, president and chief executive officer of Rhino Linings. "Besides its excellent chemical and corrosion resistance, HiChem 11 70 protective lining cures quickly, ensuring businesses experience little to no downtime and, in some cases, may return to service in less than 24 hours."

As a 100 percent solids, zero VOC product, HiChem 11 70 meets the growing demand for eco friendly coatings and linings. The polyurethane lining may be applied using plural component spray equipment to concrete, fiberglass, plastic, metal and wood, including steel tanks, pipelines concrete basins, reservoirs, aerators and digesters. It creates monolithic, seamless protection that conforms to any shape and size.

Dow Coating Materials is offering a cure speed decoupled from pot life, using a new solvent-borne technology platform. Its Paraloid Edge Isocyanate-Free1 technology extends pot life while maintaining quick cure.

"Choosing between longer pot life and faster cure time is

an ongoing challenge of 2K polyurethane coating formulations that results in a trade-off on one or both of these key properties,” said Chuck Martz, global business director for industrial coatings, Dow Coating Materials. “With Paraloid Edge Technology, formulators and applicators don’t have to sacrifice cure speed to extend pot life, or vice versa.”

The fast curing capability allows for faster return to service, while longer pot life can provide once per shift make-up, which can result in less material waste. The solvent-borne offering also features application flexibility and is isocyanate and formaldehyde free.

“Current isocyanate-free offerings exist, but they require thermal cure. Paraloid Edge technology not only offers ambient curing, but also can provide convenience, cost efficiency and an improved environmental, health and safety profile,” said Martz. “It’s a true innovation and a first in solvent-borne two component urethane technology.”

The combination of benefits offered by the technology, the company says, make it a distinctive offering in an expanding variety of markets including auto refinishing, agriculture and construction equipment (ACE), maintenance and protective coatings (M&PC) for metal, and industrial wood.

Applied as a primer in auto refinishing, it can offer dry-to-sand time in as few as 40 minutes, according to recent research conducted by Dow Coating Materials. The isocyanate- and formaldehyde-free aspect of the product can also provide an environmental, health and safety (EHS) benefit for the bodyshop.

For ACE applications, it may be used in direct-to-metal (DTM) formulations or over primer in pigmented topcoats. Because it only requires ambient curing, it can allow faster throughput for the original equipment manufacturer (OEM), while longer pot life can reduce the OEM’s material waste.

Paraloid Edge technology may also be used as a clear or pigmented topcoat for steel structures, tanks, rail cars, offshore oil and gas pipelines, and more. Its weatherability makes it suitable for maintenance and protective coatings. Compared to standard 2K polyurethane coatings, when it’s used as clear or pigmented primers and topcoats for interior wood applications like cabinetry and furniture, the benefits to the applicator can include shorter dry time, less material waste, and faster property development.

Covestro, the company spun off from Bayer’s Materials Science division in late 2015, offers a range of coating materials, and PURS comprise a significant proportion of its coatings sales. It maintains teams dedicated specifically to the agriculture, construction and earthmoving markets, as well as the off-road and transportation segments.

Factory-applied paints present certain cost challenges for OEMs and tier suppliers, such as the need for bake-ovens.

“We address these challenges by offering coatings that eliminate the need for ovens, and also newer mono-coat technologies that eliminate primer layers,” noted Christine Bryant, Covestro’s senior vice-president, NAFTA.

“Polyurethane technology plays a significant role in all of these segments, because coatings made with polyurethane technology offer greater toughness, UV resistance and ease of application; a high-quality appearance and durability; and also are color fast. There are no known color restrictions, as polyurethanes offer an almost unlimited color palette.”

Future markets for such heavy-duty coatings offer wide-ranging potential. These include wind energy systems, oil and gas refining and bridges.

“Traditional polyurethane coatings made with our materials have been used to protect infrastructure for many decades and continue to do so even in emerging markets, such as wind energy,” Bryant said. “A more recent coating innovation brought to this market by Covestro is our polyaspartic urethane coatings.”

Polyaspartic urethane coatings provide physical properties similar to traditional urethanes but can be applied at significantly higher film thicknesses. The increased film thickness allows for excellent corrosion protection with fewer coats of paint, increasing painting efficiency and lowering the overall cost to paint.

They have found use across multiple infrastructure and industrial segments. The company has found that two-coat polyaspartic urethane coatings can protect steel bridges from corrosion for well over a decade.

In a paper jointly written last year by Ahren Olson, Covestro’s market manager for corrosion protection, coatings, adhesives and specialties, and Mark Hudson, project development manager, Bridge & Highway with Sherwin-Williams, the authors reported on studies showing that polyaspartic urethane two-coat systems can save departments of transportation up to 20 percent on field repainting costs. The paper discussed results of one study using two-coat polyaspartic coatings for the field repainting of over 100 steel bridges in Virginia, comparing the field performance of polyaspartic urethane two-coat systems and moisture-cure urethane three-coat systems on steel bridges in western Virginia after 10 years of service.

The research showed the polyaspartic urethane two-coat coating systems offered corrosion protection equivalent to conventional three-coat systems. With performance being equal, polyaspartic urethane two-coat systems provide significant value to bridge owners with cost reduction in painting operations, accelerated painting schedules and milder traffic congestion. Polyaspartic urethane two-coat systems, the authors added, also exhibit excellent edge protection in areas where corrosion is likely to start.

Polyurethanes have existed for 80 years, and as a result PUR technology is a mature one. At the same time, the potential chemistries have still not been fully explored. This means the future still holds considerable possibilities for them in coatings applications. ■

Positive Containment

The Evolution of Paint Containers

SELECTING A PAINT CONTAINER involves several key factors. The container has to exclude light that might cause premature curing, and it has to maintain an internal atmosphere that satisfactorily preserves the contents.

The container also needs to be easy to use, opening and reclosing easily, and maybe having features such as a pour-spout. Also, it needs to allow for easy identification, a function that can also include shelf-appeal in a retail outlet.

And lastly, it needs to be cost-effective. Paint producers, like any manufacturers, never like to overpay for packaging.

Metal paint cans are still a key force in the market for larger containers. However, polyethylene and polypropylene have made inroads in the demand for liter cans, gallon containers and some of the larger sizes.

Retail containers made from plastics appeared in the late 1990s, though initially they were mostly in hybrid metal-plastic styles. And these tended to be larger pails, while the principal container for the consumer market, the one-gallon pail, remained as a metal can with a metal lid.

Within a decade, blow-molded high-density polyethylene (HDPE) one-gallon containers had arrived to change this. The design that caught most attention was Sherwin-Williams Dutch Boy Twist and Pour design, that was marketed through Wal-Mart.

This had a rigid HDPE body and a more flexible polypropylene lid. Not long after the Dutch Boy introduction, quart HDPE cans appeared, usually with a square shape, and fitted with pour-spouts.

But while consumer convenience was a selling point, the plastic containers were substantially pricier than metal equivalents, so there was extensive experimentation to find a cheaper alternative. PET cans, employing the same material as used for pop bottles, came in next.

While PET resin was more expensive than HDPE, the mass production process used with it helped reduce the costs. However, all-round durability was not always possible with plastic cans.



KW Container's recycled TruSnap one-gallon paint can.

With the passage of time, improved grades of polypropylene and HDPE have largely replaced the PET. Atlanta, GA-based BWAY, which is represented in Canada by Andicor Specialty Chemicals Corp., produces a hybrid paint can made in part from recycled polypropylene, and KW Containers also offers paint containers made from recycled plastics.

There is of course no ideal container. And steel is still the preferred material for larger containers for paint. UN regulations for international trans-shipment specify it.

"There has been little change in the packaging of commercial and architectural paint in Canada in decades," points out Chris Machine, vice-president of sales and marketing –



Allied Can's UN-approved container for international shipments.

packaging, for Andicor Specialty Chemicals. "Although big box retailers have made five-gallon pails of paint more available to the DIY market, the old standby for the weekend home painter remains the one-gallon, friction-fit paint can. With an eye towards cost containment, many paint manufacturers have transitioned into hybrid paint cans which combines recycled polypropylene bodies with tinplate sealing rings and plugs."

The industry, he adds, has been active in developing all-plastic gallon paint cans with limited success. The appetite remains for 100 percent plastic containers that will provide the performance of their tinplate predecessor. To this point, the goal has been imperfectly realized.

"Consumers and paint retailers demand a package that can be easily opened and closed multiple times while protecting the integrity of the contents," Machin says. "This helps explain the continuing popularity of the hybrid can."

"Bway Corporation is gaining traction in the paint and coatings industry with their TriSeal gasketless plastic cover which delivers equal performance to a standard cover but offers 100 percent recyclability."

For industrial paint and coating manufacturers, cost and performance remain the primary focus in choosing containers.

"As environmental awareness grows, steel containers continue to provide a viable option for the packaging of paints, coatings, adhesives and sealants," says Afzal Awan, president of Allied Cans Ltd. (Brampton, ON). His company produces UN-rated open-head and tight-head steel pails for paints and coatings, and has been expanding its sales of these into the US and beyond.

"Packaging and transporting of flammable and hazardous chemicals continues to be a concern in the paints, coatings, adhesives and sealants industry," he says. "This is commonly known as transportation of dangerous goods (TDG), which are regulated by the United Nations (UN) and implemented by the ministry of transportation of the specific country."

"When it comes to packaging flammable and hazardous chemicals, metal packaging has gained a proven record over other packaging materials by attaining the highest UN ratings compared to cost. This makes metal packaging the preferred packaging product for the paints, coatings, adhesives and sealants industry."

His own company's products for this specialized market include 25 percent recycled material and, naturally, are themselves recyclable. The company offers full lithographic printing for container bodies.

Toronto-based Quality Containers is a privately held Toronto company that also produces metal and plastic containers for paint. It has been in this business since 1991.

Its general line includes metal cans from 250 mL to one gallon, and pails from three gallons to 20 L.

US-based KW Container entered the plastics recycling business in 1992 to recycle post-consumer high density polyethylene (HDPE). While supplying recycled resin for a wide variety of applications, in 1998 KW began producing a plastic/metal hybrid container for the paint and coatings industry.

"Consumers and paint retailers demand a package that can be easily opened and closed multiple times while protecting the integrity of the contents."

It went on to expand this business to include all-plastic, injection-molded, 100 percent recycled and 100 percent recyclable containers. It currently claims to be the world's largest supplier of all-plastic, one-gallon paint containers with its TruSnap line.

The recycled resin used for the TruSnap line is proprietary. It does protect the coating's integrity against contamination by rust, and also from skimming, the company states. Available sizes range from one half-liter up to five liters, as well as gallon and quart sizes.

For the present, however, the marketplace is retaining a conservative approach to paint containers. Paint suppliers are better protected from liability suits and regulatory issues with the established container styles, and a cost-effective, all-round substitute for those remains on the wish-list. ■

Sample Global Issues on **Canada's Doorstep**

BY GARY LEROUX

TiO₂

There are a number of supply chain management issues originating offshore that could impact the paint and coatings industry directly here in North America. They already have indirectly, and CPCA continues to monitor the ongoing consultations related to these matters as a member of the International Paint and Printing Ink Council (IPPIC).

First and foremost among those issues is the move by REACH in Europe related to the assessment of titanium dioxide (TiO₂). It stemmed from an initiative in France last May that proposed a harmonized classification (CLH) for TiO₂ as a carcinogen 1B by inhalation. This is an important issue for industry as it is an essential pigment with approximately 85 percent of coatings using some form of TiO₂. In fact, 57 percent of all TiO₂ is used in the coatings industry, 23 percent in plastics and the remainder in various other key industries such as cosmetics.

This initiative came out of left field as industry's review of the issue did not reveal any significant, new or substantially scientific information from what was already known. It is a science-based position that such a classification is not supported and thus inappropriate. This position was validated by extensive work completed as part of the REACH registration dossier submission in 2010.

Moreover, industry's position is reinforced by findings from sound epidemiological studies of more than 24,000 workers in 18 titanium dioxide manufacturing plants over several decades, all showing no adverse health effects to humans from occupational exposure to TiO₂. However, it is now moving through the REACH process of evaluation and numerous consultations that will lead to a final opinion in September 2017. This will be followed with a review by relevant authorities in the European Commission in the first quarter of 2018. The final decision on classification will come sometime in 2019.

European industry and associations are working hard on three objectives: 1) continue to provide hard data to REACH to avoid any classification based on long established scientific data and new studies where available; 2) consider the possibility of a regulatory approach such as a CLP exemption for TiO₂ to be used when incorporated within a product matrix before use; and 3) determine how the political approach could be engaged by lobbying European states to highlight the negative socio-economic impacts of a strict TiO₂ classification as proposed.

Associations concerned about this initiative in North America will need to consider how they might use their influence and data to shore up the efforts of European groups at the appropriate time during the process. CPCA, along with other coatings associations in North America, is now considering those options. It was a surprise that such an initiative began

in the first instance and, as such, everything must be done to prevent an even bigger surprise later.

Indoor Air Quality

For most property owners and residents, a fresh coat of interior paint in the latest trendy colour goes a long way towards creating pleasant surroundings. For some residents though the apparent odours associated with newly applied paint are still a concern, both from a public health and an environmental perspective.

While sources are widely acknowledged however, specific standards for building practices relating to indoor air quality in Europe have initially focused on fixed construction materials (e.g., wallboard, carpet and insulation) and did not include interior house paints, which were viewed as "removable, replaceable or subject to re-application." Despite not being subject to regulation under construction standards, the VOC content and emissions from house paints is widely recognized as a potential to cause adverse health impacts. The coatings industry in Canada has responded positively in this regard, as recent extensive testing by Environment and Climate Change Canada revealed that virtually all waterborne paint products in Canada meet the current VOC regulations for concentration limits for architectural/decorative coatings. The coatings industry in Canada has responded positively in this regard, as recent extensive testing by Environment and Climate Change Canada has revealed that virtually all waterborne paint products in Canada meet the current VOC regulations for concentration limits for architectural/decorative coatings.

There is a wide array of regulatory approaches on indoor air quality operations in the EU member states. In general, all centre around the interest of end users to obtain products, including indoor and decorative paints, that do not result in exposures in excess of an established Lowest Concentration of Interest (LCI), usually referenced to exposures encountered in the indoor environment 28 days after application. These LCIs are being established by national government agencies in the EU and reflect a consensus on the required testing methods and underlying risk assessment process.

The European Council of the Paint, Printing Ink and Artists' Colours Industry (CEPE) analyzed available data and offered some initial guidance on the types of products that might achieve the 28-day LCIs. Follow-up work is underway to collect additional data on products intended by the manufacturer to meet low emission limits, including available manufacturer testing for a wide variety of paint products in commerce. Over time, the collection and analysis of available industry data on emissions and indoor air quality is expected to provide important inputs for wider health, safety and environmental assessments including Life-Cycle Analysis (LCA) and the devel-

opment of more detailed Product Environmental Footprint (PEF) profiles.

In an effort to help the paint industry understand and address these new standards, the American Coatings Association (ACA) undertook research using established “chamber testing methods” to evaluate emissions from typical indoor paints. The goal of the research

was to gain a deeper understanding of the impact of paint on indoor air and develop an informed technical position.

Also critical was the development of an improved analytical method that assessed coatings emissions fairly, and use of that method to develop data to support a robust predictive tool and/or model for paint and coatings manufac-

turers. The long-term goal is to strengthen industry knowledge of paint emissions and help position manufacturers to address emerging green building standards and future legislative or regulatory proposals on indoor air quality.

The results of ACA’s testing program affirmed a number of findings from research done in Japan and the EU. Residual formaldehyde emissions continued to be present in one of every seven products tested, and the underlying chemistry associated with formaldehyde release needs to be further evaluated to characterize both the sources and the ways to mitigate exposures. The VOC content of nearly all indoor paints continues to be quite low, generally meeting the most restrictive standards established in the US.

Based on a “market basket” survey of indoor paint products, nearly 82 percent are likely to meet the lowest restrictive standard for emission criteria. Finally, the ACA testing data shows that there is little correlation between VOC content of indoor paints and the emissions profile, especially in chamber testing taken out to 14 days.

Additional research efforts underway in the US are likely to uncover more factors impacting product emissions, in some cases relating to substrates (i.e. wall board acting as a “sink” absorbing VOCs from paints and other household sources creating a continuing slow release). While the initial data is encouraging, in particular that most products are likely to meet established emission standards, any lowering of such standards, particularly if indexed to a risk assessment, is likely to impact product availability.

These efforts, each done independently in different parts of the world, and each following a different exploratory pathway, offer remarkably consistent pictures of assessing emissions from indoor paints. The targeted research efforts underscore the importance of having important consensus reference points for evaluating indoor paint exposures and advancing product standards.



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Mica: Addressing Child Labour

Although largely unknown to consumers, mica is one of the most widely used minerals globally, highly valued for its ability to reflect and refract light and found in a multitude of different products and industries. Roughly 25 percent of the world's mica is mined in the impoverished Indian states of Jharkhand and Bihar, with an estimated 20,000 children engaged in illegal mines using child labour. Mica is a tough, flexible and transparent mineral that can be ground to less than a micron sieve mesh. It is an anti-friction, anti-fouling, anti-settling, anti-corrosive, and anti-tarnish agent.

Mica acts as a reinforcing pigment to reduce cracking, peeling and checking in the dry film and prevents shrinkage and shearing of the paint. Mica particles brighten the tone of the coloured pigments and at the same time transmit and reflect light resulting in proven decorative effects and design. It increases the gloss of a paint more effectively than spherical or irregularly shaped filler particles of an equivalent size product. Mica also optimizes the effect of other pigments by ensuring that the pigment particles are evenly spaced in the dried paint film.

Large automotive coatings companies like PPG and Axalta, and other large companies in the cosmetics sector, have joined a global initiative to purge child labour from the mica industry as it relates to their supply chains where child labour is used to harvest mica. The global coatings industry, represented by IPPIC, has also agreed to become a member of Responsible Mica Initiative (RMI) before September 2017 to support anticipated efforts by RMI-Action Groups and NGOs on developing specifications, a legal framework and increased advocacy with respect to the use of child labour in the harvesting of mica. In addition, IPPIC members agreed to promote RMI and its goals to relevant member companies and develop—when necessary—additional supportive statements to assist in this effort. ■

Creating the Ideal Look for Wood



Well-finished kitchens are a major source of pride for those who have them.

Photo: Alberdingk Boley

FOR MOST PEOPLE, wood is still the preferred material for cabinets in kitchens and bathrooms. Its durability, its feel and its look, all combine to create a lasting appeal. In a world where so many things are transitory or synthetic, it's simply a reassuring thing to have in our homes.

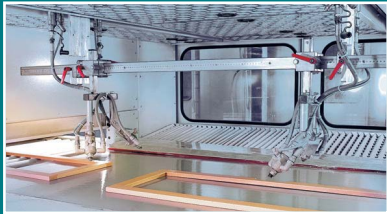
Finishes for wood are varied, and formulators continue to produce new materials all the time. In addition to preserving wood against scratches and spills, or excessive drying during the winter, a good finish enhances the grain and visual appeal of a wooden cabinet.

A key issue, of course, is the shift to waterborne coatings. Environmentally, and in terms of employee safety, waterbornes make a lot of sense, but to date, the changeover is not universal. Many finishers are sticking with solvent-based coatings or polyurethanes instead.

"Like most manufacturers, KCI's focus continues to be the development of greener coatings alternatives," says Rob Penfold, sales and marketing manager with



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Katilac Coatings Inc. “We get a lot of questions surrounding waterborne coatings but the marketplace, for the most part, is still reluctant to make the switch.”

To this end, KCI has been working to develop some solvent based solutions that, while not as ‘green’ as waterborne, embody more of an environmental consciousness than traditional products. In 2016, for example, KCI launched its PURE line of formaldehyde-free coatings.

This product line consists of a sanding sealer, a pre-cat and a conversion varnish, all of which are drop-in replacements for existing solvent-based coatings, with no need for equipment or process changes.

“The PURE line will meet many of the environmental standards like Greenguard and also pass AWMAC/AWI and KCMA performance testing,” Penfold says. “Also new to the KCI line-up is our new Pinnacle HAPs-free conversion varnish. This is a high-solids, water-white, two-component product that provides outstanding durability properties in a formulation that does not contain hazardous air pollutants.”

On the waterborne front, KCI is launching Endurance interior/exterior waterborne polyurethane as part of the company’s Green Star family of waterborne products. It is a single component, aliphatic polyurethane designed to give outstanding moisture, chemical, abrasion and UV resistance to both interior and exterior applications. It provides, Penfold says, the durability of a component product in a two-component system.

“There has been an increase in the use of European-style urethanes and polyesters.”

“In the last couple years,” he adds, “there has been an increase in the use of European-style urethanes and polyesters. Traditionally this has been a small part of the market but it is growing and the number of brands has risen substantially.

“While these coatings are more expensive, they can yield an incredibly strong finish. Often higher end kitchen cabinet manufacturers will utilize these types of coatings. Additionally, the popularity of high-gloss finishes in kitchens has helped drive the sales of urethanes, as it is much easier to achieve the high gloss look with those types of finishes.”

While waterborne technology has come a long way, Penfold adds, most manufacturers are sticking with solvent based for now. Many people are experimenting with waterborne because of the marketability of ‘going green,’ but the learning curve on the application end of things deters a lot from making the switch. So, an alternative is solvent-based products that are more environmentally conscious like formaldehyde free coatings.

Is there a fashion trend driving finish selection? He thinks not.

“But I would say,” he observes, “that the growing experimentation with waterborne necessitates that shops have dedicated equipment for spraying waterborne.” Marie-Sophie Guindon, marketing and communications coordinator with Canlak, agrees that there has been a shift towards waterborne finishes.

“There is also a trend towards reactive stains (two and three-tone finishes), and urethane,” she says. “Ultra-matte finishes are the big thing right now also.”

Canlak makes made-to-measure products, so it is always improving technical performance across the board, but doesn’t have a conventional, standard line of finishes. That said, Guindon says there is a discernible move towards UV coatings for flooring, and waterborne and solvent-based finishes for furniture.

“I would say that with the new trends, the flooring industry requires different

A photograph of a modern kitchen. The upper cabinets are dark wood with horizontal grain and silver handles. A stainless steel microwave is mounted under the cabinets. The backsplash is made of stacked, light-colored stone tiles. A white countertop is visible. The lower cabinets are also dark wood with silver handles.

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equipment capabilities,” she observes. “The trends in the flooring industry, especially when it comes to UV finishing, requires specific equipment. That’s definitely something we need to keep in mind when selling these types of product lines.”

In other words, there’s a learning curve to follow with new types of finishing materials. Finishers ignore that at their peril.

Valspar’s contribution to this field is its third-generation Zenith waterborne lacquer, a waterborne coating for finishing fine woodwork. It has, the company says, exceptional film clarity that retains the natural warmth and character desired by professional wood finishers.

It has been formulated with proprietary resin technology to yield a finish that is superior in durability to conventional nitrocellulose finishes, and is a low VOC, HAPS-free formulation that contains no isocyanate or formaldehyde.

Valspar recommends it for a broad range of products, including fine residential furniture, millwork, moldings, interior doors, and picture frames. The environmentally friendly formula also yields a finish that is suitable for children’s furniture, and for consumers that are sensitive to harsh chemicals.

The product can be applied with the conventional, HVLP, airless or air-assisted airless spray equipment. It features 30 percent weight solids, and Valspar says it also offers excellent UV resistance.

Another name having an impact on the wood coatings business in Canada is ICA North America, a family run business in Ontario that has been in operation for 17 years. Company spokesperson Caroline Levesley explains it operates through a distribution network, and has distributors from East to West Coast of both United States and Canada.

The ICA range of coatings available in North America is imported directly from the headquarters, ICA Spa, in Italy. It includes specialized interior and exterior waterborne systems, solvent and water based stain systems, polyurethane, polyester, special effect, UV, and some of the very latest glass coatings.

ICA Spa is a leading producer of specialized high end coatings for wood, and was the first European wood coatings manufacturer to achieve ISO14001 certification. The manufacturing of the coatings is carried out at the two production plants in Italy.

Its CNA range of waterborne stains consists of concentrated tints that can be dissolved and stabilized in water. They claim excellent transparency and light fastness, and are applied as a spray-no-wipe system offering minimal grain rise.

Other products in the ICA range include polyesters that are mostly a mix of three components: a basic resin, an accelerator (generally cobalt) and a catalyst (peroxide base). A complex crosslinking reaction also involving the reducer takes place when all three components are mixed, resulting in an extremely full bodied film that the company says offers notable surface hardness. The hybrid PF5051 grade combines the extremely high solid content and self-sealing properties of the paraffinated polyesters but without their critical overcoat windows.

There is also a range of acrylic, UV-cured products.

Acrylics can address some VOC issues, in that the monomers they contain are less volatile than styrenes in polyester UV wood coatings. They therefore provide a product with a solid content of 100 percent.

Acrylic UV products have excellent elasticity, adhesion and chemical-physical resistance, and with the use of the specific primers, it is possible to solve the typical problems created by resinous woods. ICA’s specifically formulated products for painting frames and profiles, because of their high reactivity, can be used at high operating speeds.

On the polyurethanes side, Dow Coating Materials recently took a 2017 Innovation Award from the Chicago-based Business Intelligence Group for its Paraloid Edge technology. The BIG Innovation Awards seek to “recognize companies and technologies which bring new ideas to life, solve real problems and drive rapid progress across various industries.”

Offering similar product characteristics to those expected from traditional 2K polyurethane (PUR) systems, Paraloid Edge technology goes a step further, to expand the short window of workability to remain fluid longer, depending on conditions, without increasing dry time after application.

“The novel ambient cure capability offered by Paraloid Edge technology can allow for faster return-to-service,” observes Dave Pierce, new business development, Dow Coating Materials, “while extending pot life can facilitate once per shift make-up and potentially less material waste. This solvent-borne offering also features application flexibility and is isocyanate and formaldehyde-free.”

The material can be used for multiple industrial coatings applications, but specifically in automotive refinish and wood applications. These, he adds, are areas “where excellent scratch resistance, hardness, weatherability, and chemical resistance are critical.”

When used as a clear or pigmented primer or as a topcoat for interior wood applications, such as cabinetry and furniture, Pierce says, potential benefits to the applicator include shorter dry time, less material waste, and faster property development, while being both isocyanate- and formaldehyde-free. Formaldehyde is a regulated raw material in the wood market, so having a coating that does not contain formaldehyde, is not only advantageous, but a requirement in some segments of the market.

“The cutting-edge benefits of this latest Paraloid product family offer a more convenient, cost efficient solution while facilitating an improved environmental, health and safety profile,” adds Mary Rose Correa, North America marketing manager for industrial coatings, Dow Coating Materials.

There is no single product category in wood coatings that will change the entire field; but then, the range of finishes the market requires precludes that in any case. What is clear is that invention and reinvention for wood cabinet surfaces is a field that continues to expand, and to widen the options for esthetic possibilities. ■

Working a Niche in Finishing

SMALL BUSINESSES all face a collection of ongoing problems that are pretty much the same everywhere. But what makes a successful small enterprise is the way it works a particular niche to overcome the difficulties of finite resources and limited geographical reach.

Finish Pro Paints Ltd. was started by Maria Lopez in 2001, after she lost a job with a Toronto-area furniture company Leda Furniture, where she was the lead finisher. Finishing tends to be a ‘guys’ business,’ but she set out immediately to distinguish herself as a woman in the field. And today, the company’s website still proclaims it offers “Custom finishing with a woman’s touch.”

Today that approach includes Maria’s daughter Sharon, who joined the operation in 2009, after a previous career in the corporate sphere. Sharon takes the title of finishing manager at the company, which is based out of a couple of industrial units in north Toronto, but also handles other aspects of the operations to the actual finishing.

“We mostly work for custom home builders,” says Sharon Lopez. “The majority of our work is in special finishes such as antiquing. We have developed that niche for ourselves, so we get a lot of requests for these styles of finish.”

The operation stays lean, with just mother and daughter full-time, plus plant employee Max Mignon (pictured). However, depending on demand, they hire contract employees as needed, especially for going in to do renovating or refinishing of existing bathrooms and kitchens.

“The business is very relationship-based,” says Maria Lopez. “We have to be meticulous about being on schedule.

“We sometimes get jobs that we have to turn around in a day or so. And there are times we have had to work through



Max Mignon finishes a wood cabinet panel.

weekends and holidays. We try not to do that, but sometimes, you can’t avoid it.”

“People call us with unusual work,” Sharon adds. That might be silver legs on tables, or a special glaze. I’m the designer, along with my mom. I also handle onsite repairs for customers.”

Finish Pro still uses a lot of liquid paint for the custom finishes. It sources these, in particular, from Katilac Coatings Inc., and, for solid colors, from Chemcraft International Inc. It also buys many of its oil-based wood stains from John E. Goudey Manufacturing Ltd.

“For some of our projects we do water-based,” Sharon says, “especially for commercial jobs. Retail stores prefer it, but it isn’t always possible to use water-based finishes. KCI has a water-borne topcoat clearcoat, which we will use at times, and Protek Paint Ltd. supplies an excellent waterborne paint for finishing glass.”

Painting on glass is an emerging market Finish Pro has been able to exploit. While the idea sounds counter-

intuitive – after all, glass is meant to be transparent – it is an emerging favorite for both kitchens and bathrooms.

“It’s a trend, to paint the undersides or back of glass,” says Sharon. “A lot of vanities have painted glass for back-splashes. The paint is very resilient, and if you dropped the glass, it would likely stay in one piece because of the paint holding it together.”

The operation occupies more than 4,000 sq ft in an industrial mall. It expanded from one unit to two some years ago, when growth in the business meant it needed the extra space.

Much of the company’s business comes in the warmer months, when homeowners aren’t worried about opening their windows to let out paint fumes. But the business continues through the rest of the year, and in colder periods it works primarily from one of the units, while the other, joined to it by a connecting entrance, is used more

for shipping and receiving.

"We just found the one unit was warmer, and so it was better to use for curing the painted doors, cabinets and other components," Sharon explains. "So, that unit also has the main ventilation system."

The spray booth is equipped with Kremlin air-assisted spray guns.

The area served by Finish Pro includes, obviously, the greater Toronto area, although it has clients well outside that catchment area. There is no sales force per se, and almost all clients come from referrals.

"We have found a lot of products now come in pre-finished, largely from China," Sharon says. "And wood prices have gone up, so a lot of people have opted out of buying wood doors."

"But there's still a market for us, and apart from the slowdown in 2008/9 that affected everyone, we've found business has been very steady."



Marie Lopez (left) with daughter Sharon.

She credits the hands-on involvement of herself and her mother for this, as well as the flexibility a small, owner-operated company can offer. By staying focused on the niche it has found,

Finish Pro has established a reputation for quality and reliability that keeps it on track. ■



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The Essential Manual Spray Gun



The S-Flow, a standard manual gun from the KREMLIN line.

WITH ALL THE EMPHASIS today on cost-cutting, automated systems, manual liquid paint spray guns seem like they are out-moded. Yet the demand for lighter, more efficient manual guns is constant: for refinishing or touch-ups, and for the small runs where the economics of automation make no sense.

There are, naturally, several different categories of manual spray guns. The usual designations are air-spray, air-mix and airless. Making accurate decision on which to use can be a make-or-break decision for manual spray guns' efficiency.

"On the air spray side, customers are looking for lightness, easy to clean cups, filters inside cups, and different air cap needle combinations to handle different products," says ST Rajan, vice-president of sales for Canada with SAMES-KREMLIN. When handling large volumes, they are looking at pressure pots, whether coated or stainless steel, agitated or non-agitated, with easy to work regulators with gauges."

Some customers, he adds, are interested in pumps. These should be designed to handle different chemicals, without reaction to the metals. Additionally, the hydraulics should be small so that color changes become easier, as does flushing.

"On the Airmix side," Rajan says, "people are looking at atomization, the ergonomics of the gun, and easy maneuverability. And selection of pumps become very critical.

"A good pump with the right pressure ratios, and with a good gun, is the ideal selection for a customer. He gets the

finish he needs, he gets the speed in production, he gets better coverage in corners, and it's easy to clean and easy to change colors."

Depending on the pigments and other chemicals, there is a need to select the right filters at the gun and pumps. All liquids need agitation so that solids do not settle down.

Selection of tips to suit the chemicals is therefore very important. The hoses should also be selected for ease of use and low wastage.

"On the airless side, deciding on pressures has become very important," Rajan observes. "Generally, airless would work very well at pressures over 300 psi. This is good for thick products and water based products.

"The guns should have a turnflo tip and a safety guard for



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DeVilbiss' HPLV spray gun.

“Today every manufacturer is cognizant of lightweight guns with minimal dead ends. This is liked by the operators, and cleaning becomes easier.”

safety. Depending on the viscosities, selection of pumps with the correct pressure ratios become critical.”

Ergonomics has received considerable attention in recent years, with suppliers of spray-guns aiming to reduce weight and make hand-grips more comfortable and practical. However, there are other aspects to ergonomics beyond these two points.

“Today every manufacturer is cognizant of light weight guns with minimal dead ends,” Rajan says. “This is liked by the operators, and cleaning becomes easier.

“The painters are also looking for atomization and easier way to change pressures and maintain a gun. The more they are comfortable with the gun and combination, the better the output you can expect from the painters.”

SAMES-KREMLIN, he adds, is constantly looking at improvement to its products. With the air spray guns, it first had the M18, then went to its model M21. Now it has the M22, and soon it will come out with a brand-new air spray gun that will be lighter, offer better atomization and be easy to handle.

“On the Airmix side we have the MXLT guns,” he says, “then we came out with the MVX gun and now we have the Xcite guns. Soon we are coming out with another gun with



The model 570 spray gun from Wagner.

changes. On the airless side, we are coming out with our new S Flow design airless gun and will be packaging it with pumps to cater to different markets.”

Various other suppliers have new or recent designs available for manual spraying. SATA's Phaser gun was developed in co-operation with the Porsche Design Studio. Technically, it is identical to the SATAjet 5000 B HVLP spray gun, using the same nozzle concept.

Due to the optimized shape of the gun handle, the company says, this spray gun fits perfectly in the palm of the hand. In addition, the gun handle of the digital version is identical in size to the standard model, which makes it usable by all painters, regardless of the size of their hands.

The ergonomic design affects not just the gun handle, but equally the design of the spray fan control, and the material flow control as well as the air micrometer. Optimized nozzle concept offers versatility in the inlet pressure and the spray distance.

The proprietary, Pearlchrome surface offers easy cleaning, and is corrosion-resistant. The control elements are easily adjusted, and there is a safely positioned trigger sleeve for easy, safe and quick insertion of the paint needle. The swivel joint has a new, high performance seal.

Wagner's 570 paint sprayer can spray unthinned interior and exterior latex paints, stains, sealers, urethanes and oil-based materials, and offers the company's X-Boost power settings to match project needs. It can spray up to 7.2 gallons of paint per hour, and has the company's Lock-n-Go system for color change and clean up.

A pattern adjustment ring is offered for horizontal and vertical spray patterns, and there is a spray width lever for wide and narrow patterns. The company says this unit can cover up to an 8x10 ft surface in two to six minutes, while its 1.5-quart cup can covers up to 125 sq ft in one fill.

DeVilbiss' current range of manual spray guns offers com-

Nordson's A4B manual airless spray gun.



Prona's R 71 air-assisted spray gun.

compact pressure, gravity and syphon feeds. The compact pressure feed gun uses an external pressure source (pressure tank, piston pump, or diaphragm pump) to force air and fluid to the air spray gun nozzle. Air and fluid are then mixed outside the spray nozzle via external air caps.

The compact gravity feed gun has its cup located above the gun, so that force of gravity pushes the fluid into the gun. By

suited to both small operations or high volume facilities. The companion HVLP line offers similar capabilities.

Nordson's current range includes the model A4B manual spray gun. This, the company says, is lightweight, rugged and dependable for ease of operation and long service life in manual airless painting operations. It is available in a non-circulating version for cold airless painting and a circulating

contrast, the Silver compact siphon gun is an advanced conventional gun offering a high-capacity airflow with high levels of atomization. The advanced conventional air caps make this gun

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A SATAjet 5000 B HVL.P.

version for use in high-performance heated airless painting. Stainless-steel models are available for highly corrosive materials or special applications.

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Interchangeable internal parts allow flexibility for use in circulating or noncirculating systems. And a convenient trigger safety and integral fluid diffuser promote safer operation.

Prona's SG-71 is a specialty manual spray unit that can be used for appearance decoration. It will spray out various patterns such as floss, coarse dot, fine dot, as well as other patterns.

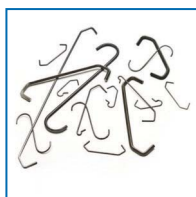
It will spray a fine dot using a No.1 spray cover, and a coarse dot or a spray floss using a No. 2 spray cover. It manages coating viscosity below 25 seconds, with air pressure not less than 0.15 (1.5) MPa (bar).

With all these models on the market, the shop needing manual spray capabilities is not short of options. The perfect gun will never exist, but the selection today ensures that it is always possible. ■



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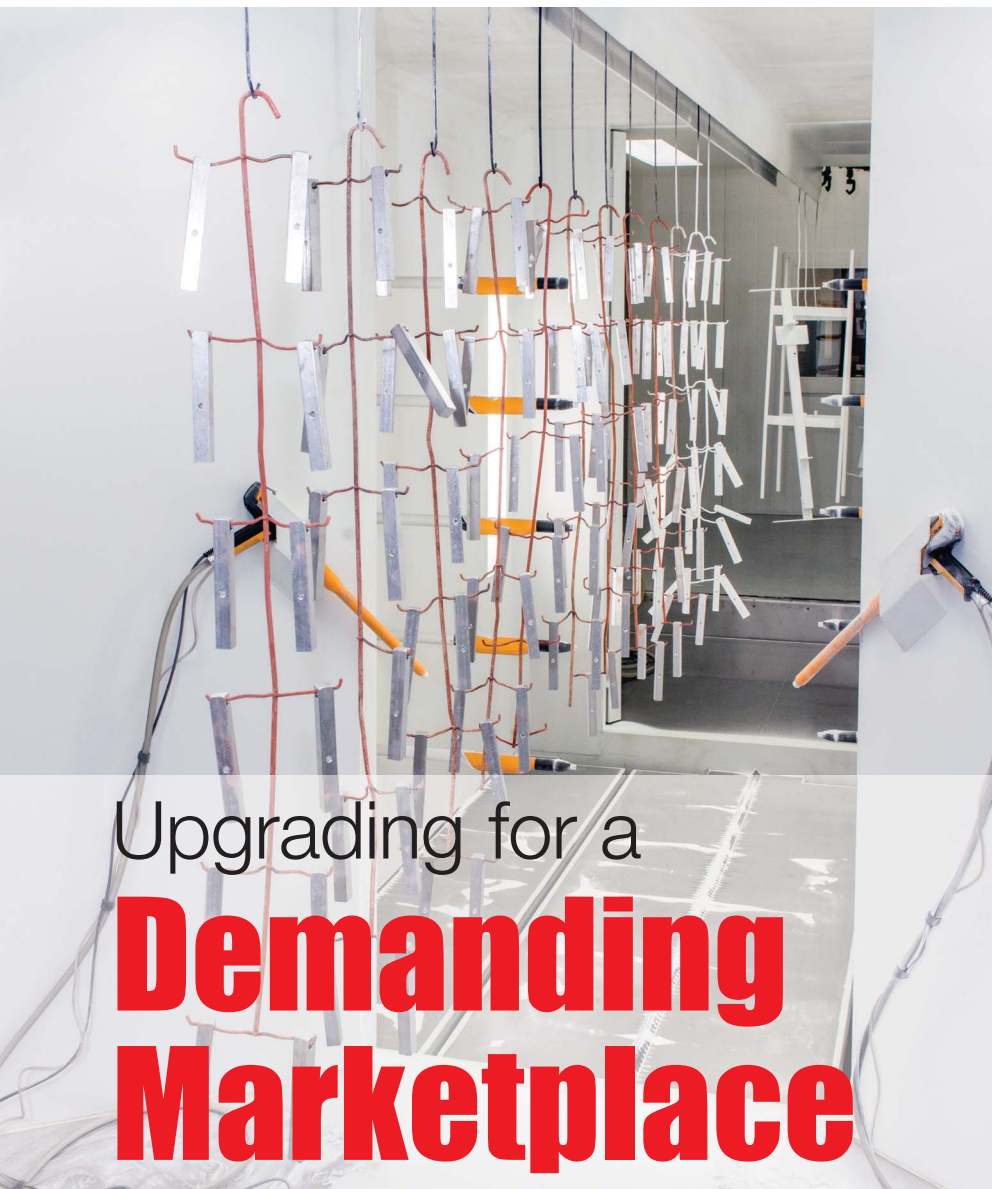
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Upgrading for a **Demanding Marketplace**

UPGRADING with a new production line is not the type of thing designed to reduce anyone's stress level. The possibilities for making an error in the type of equipment specified, or the configuration of the line, are immense, and there are plenty of headaches awaiting anyone who starts on the process.

Richardson Industrial Finishers Ltd. has been in operation since 1966. It performs spraying with liquid paint and powder coatings, as well as providing abrasive blasting services to a wide range of industries.

The company is based in Scarborough, in the eastern part of Toronto. It recently installed a new powder coating line, to improve output and product quality, and so it had to go through the entire exercise of decision-making to buy the optimal system.

The present facility has 23,000 sq ft, and employs 20 staff,

as well as occasional contract employees. There is sufficient land to permit building an additional 6,000 sq ft of manufacturing space, although new construction is obviously the next step as we expand.

"My father-in-law Blake Richardson started the business," says Richard Lothian, vice-president and general manager. "We only had half of our current building until 2005, and later acquired (and purchased) the entire building."

"We were strictly doing liquid in the earlier years. But we saw powder being demonstrated at a trade show 22 years ago, and we decided, Let's change our focus."

The company serves a wide range of industries which include switch-gear systems, electrical enclosures, metal office furniture and a wide range of general industrial products.

"We provide liquid and powder coatings in our batch systems," Lothian says. "We recently started using thin-coat powder as a replacement to liquid paint but still provide a liquid option for custom colours and protective coatings. We have two batch systems, one for liquid and one for powder."

"Our maximum part size for our batch system is 20 ft x 7 ft x 9 ft so we can accommodate over-sized products. The new powder line can handle items 15 ft long x 6 ft high x 40 in. wide."

While 23,000 sq ft might sound like a substantial amount of floor space, the Scarborough facility was recently starting to feel cramped. Additionally, any company that wants to stay competitive needs to look at its consistency of quality standards, something an equipment upgrade can support.

Lothian's son Michael has been involved with the plant since he had summer jobs there as a teenager. He took time out to take a degree in business administration, and is now in charge of business development and strategic initiatives for Richardson Industrial Finishers. Specifying the new powder line was a key task for him over the past year.

"We looked at equipment from several manufacturers," he says. "We finally settled on Gema, in part because they offered service and parts from their Ontario distributors, ECE Canada Ltd. We didn't want to have to wait on a serviceman coming from a facility in the US if we had a problem, and



Powder Recovery.

ECE is in Mississauga, just west of Toronto.”

The company had previously used Gema’s manual spray guns. However, the new powder line marked a quantum jump in sophistication.

Before anything was installed, however, there had to be some serious engineering about line configuration, existing conveyor system and plant layout.

“We asked our painting staff, to see what they felt we needed in our booths,” says Michael Lothian. “They offered a lot of input.”

The finished line is 800 ft long. The decision was made to take out some of the office space for a cool-down area, which saved considerable space in the plant.

“We started in October, digging pits,” says Michael Lothian. “We were too busy to shut down, so we decided to build it in one push over the Christmas shutdown.”

Start-up went without any serious hiccups, and the line has been functional since shortly after the start of the year. The main human resources issue lay in training staff to perform the cleaning process in the correct sequence, guided by symbols produced on a touchscreen in the Gema OptiCenter, which is the brains of the operation. Establishing that routine took about a month..

The powder for the system is loaded into a hopper at the OptiCenter, then input to the spray guns. Waste powder is collected and passes through a cyclone separator, so that the system is constantly adding back reclaim to virgin material.

“This system collects all the waste powder, so that it’s re-applied,” says Richard Lothian. “We completely realigned the heat system in our cure oven, to make sure we had enough cure-time for the increased line speed.

“We also relocated two batch booths, and made some changes in our washer, so we could ramp up our line speeds. The old system operated at five ft a minute, but with this one, it’s now nine ft a minute. And we use half the material we used before, so we’re seeing quite a saving.”

Additionally, color changes are faster, particularly when compared with old liquid paint system, where a change could take 45 minutes. The plant changes powder colors between five and 12 times a day, and the new line needs just 10 minutes for each change of colour.

“We try to run from dark to light, or light to dark,” says Michael Lothian. “But we can change from white to black in



Richardson Industrial Paint Finishers and Edward Mason, CFCM Magazine.

10 minutes if we need to.”

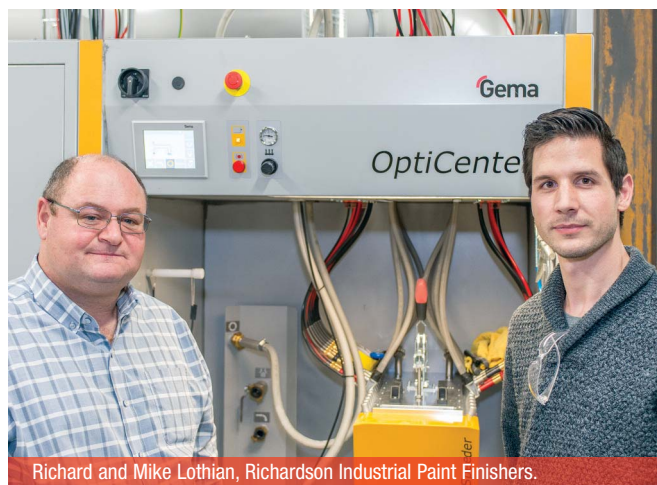
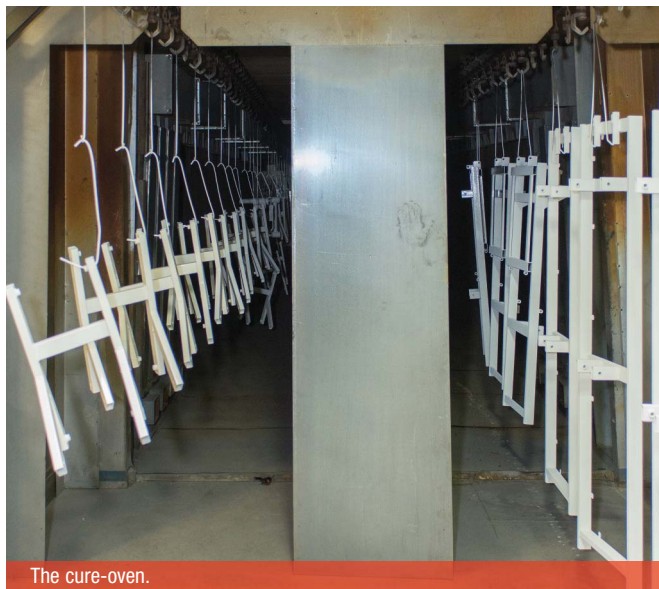
The whole powder line is totally automated through the OptiCenter. However, it can use one or two back-up painters to handle difficult angles, or crevices in parts.

The operation uses polyester powders, a few hybrid powders and super-durable powders from TCI Powder Coatings Canada, Tiger Drylac Canada, Prism Powder Coatings, Erie Powder Coatings, Protech and Sherwin Williams.

Aside from choosing Gema as the powder system, Ventcor Systems was an integral part of putting the system together along with creating an environmental room. Ventcor Systems



The powdercoat line.



worked together with Mike Lothian throughout the project, from engineering to final completion.

The plant uses a multi-stage iron phosphate and zirconium pretreatment. Hooks and fixtures are stripped in a Pollution Control burnoff oven. At one time, they were sent out for stripping, but having an in-house cleaning operation has

been found to save significant time.

The new powder line was a significant investment, and a major job of work to install. However, it is already improving throughput and product quality.

“We’re really happy with this,” says Michael Lothian. “It’s delivering all we hoped it would.”

Having it in place means Richardson Industrial is well positioned to prosper in today’s complex, demanding markets. ■

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The design of dangles has changed with the years, and one move has been towards improved insulating layers. Regular vinyl sleeves, for example, can cause dragout, whereas a plastisol dip gives a much more secure covering. The initial outlay per dangler might be higher, but a plastisol covering pre-empts the risk of a chemistry being carried from one tank to the next, or the possibility of chromate leakage into the parts at the unload station.

Barrel plating line staff should check dangles each time the barrel is unloaded. In most production systems, there is usually enough time to replace a dangler without removing the plating barrel from the line. There are various quick-change tools to make this process easier.

Most dangler suppliers will tell you that replacement of barrel dangles, or the contact tips, should be part of any



NewAct dangles, including (below) one with a Kevlar sleeve.

ongoing maintenance program. A damaged or worn dangler can impede the plating process and add to production costs.

Dangles do change with the times, and the engineering they employ has shifted. There are also, of course, market forces forcing change in designs and sizes. Brad Hatcher,

“While plastic coatings often reduce the flexibility of the cable, the molded rubber has minimal impact, reducing the risk of component failure from cracking.”

president of The Dangler Guys, observes, “It seems to me that the industry is growing because of high demand for plating faster. Companies are running bigger barrels with higher current and bigger loads.

“This is causing us to make larger danglers such as our 350MCM and 444MCM danglers. The loads in these barrels are upwards of 1,000 to 1,200 lb.”

These two dangler designs were produced to handle higher amperage. Following the plating industry’s gradual recovery from the 2007/8 meltdown, new barrel lines were installed by many companies, with the higher capacities that lead to a more competitive operation. As a result, demand for customized danglers, Hatcher notes, has definitely taken off in recent years.

“The industry has really gone the way of customized danglers for specific applications,” he says. “Even for job shops, we have really customized the danglers with different coatings, lengths, and cable size to fit their needs.”

The Dangler Guys has been in existence since the start of the century. Working very closely with customers on dangler designs is a key part of the business today. Producing danglers that better suit specific applications is, he says, a critical aspect of his company’s survival and success.

One relatively recent innovation from the company is a dangler with a thicker vulcanized sleeve. This is made of a combination of materials that make it more chemically resistant and flexible, as well as lasting longer.

All TDG dangler heads feature an exclusive triple-crimp design. This concept can be used with any sized parts or barrel loads.

NewAct Inc. makes danglers that use only completely vulcanized CPE rubber sleeves. Tom Vale, vice-president of sales for the company, says this offers several advantages over the more traditional plastic insulating coating.

“While plastic coatings often reduce the flexibility of the cable, the molded rubber has minimal impact, reducing the risk of component failure from cracking,” he says. “CPE rubber is used because it is more chemical and wear resistant than neoprene or EPDM and provides a strong yet flexible



Metafin’s heavy-duty danglers.

sleeve that reinforces the strength of the cable jacket.”

The material and method used to mold the sleeve also reduces the amount of residual chemicals that can be dragged from one tank to the next, preventing tank contamination and resulting in higher quality plated parts. The steel used in the danglers is unleaded, eliminating the possibility lead contamination.

NewAct’s danglers can be manufactured to customer specifications in lengths up to 120 in., and in most standard cable sizes up to 0.75 in. in diameter. Additional customization options include crimped over, standard, double-crimped, or custom configured knobs.

“We think that our molded sleeve is superior,” Vale says. “We think that one competitor thinks so also, and have tried molded sleeves on their product.

Fortunately for us, theirs is not a homogeneous sleeve like ours are after we mold them.”

The majority of NewAct’s customers work with one standard design, he continues. That said, the company is seeing a demand for more and more custom sleeves and knob configurations.

“We are now molding a Kevlar-filled sleeve on cables,” he says. “This is a special item that reduces cuts and wear on the sleeve, at a small up-charge per dangler.”

And there are other suppliers with specialty lines as well as distributors of standard products. Metafin Supply Co. offers heavy-duty danglers made from durable, insulated high-tensile strength cable, in standard 4/0, 2/0, 1/0, 6ga, 4ga and 2ga sizes. Knob sizes for these are available from two to five in.

The barrel anglers are custom-made to fit individual customers’ barrels. Non-standard sizes, special designs or special materials are available as well.

The market is competitive, but it always pays to hunt for options in buying danglers. The market will continue to come up with creative options, and ways for a plating operation to cut its costs. ■

Through **Thick** and Thin

REQUIREMENTS for testing thickness vary widely. But in general, across the board, the trend is towards faster, more accurate readings. Specs for plated parts today are tighter, and cost factors more critical for the companies supplying them.

Several factors are driving the development of the current generation of measuring devices. One is the miniaturization of components, which makes them more portable, and also more precise.

Another is the development of improved algorithms, which can check the thickness of metallic coatings much more exactly and consistently.

Thirdly, the improved ergonomics of the devices available, along with wireless connectivity, means their use and the production records that can be compiled are better and more comprehensive than was possible just a few years ago. This means that companies that were reluctant to adopt new devices previously, now have more confidence to monitor their parts' quality.

Oxford Instruments' range of thickness measuring instruments, represented by Gardco, features a probe foot designed for smooth surfaces as well as an extended measurement range. The models CMI155 and CMI157 measure the thickness of single layer coatings or the total thickness of applied coatings on iron, steel, aluminum and other metal substrates. They can work with non-metallic coatings.

These compact, handheld gauges are factory calibrated, and will automatically select the best measurement technique for the base material. The gauges have a rubberized cover and meet IP52 environmental protection standards to withstand use in harsh conditions.

They feature single-button operation, and, the company says, can be used without prior operator training. They have an integrated probe design, and automatic substrate detection.

ElektroPhysik's SIDSP (for Sensor Integrated Digital Signal Processing) system represents a step beyond generating an analog response from the sensor which is then sent to a host gauge. With SIDSP digital technology sensors, the complete thickness value is calculated at the actual point of measurement where the sensor touches the coating. Only the fully analyzed and processed digital coating thickness value is transmitted through the probe wires, not an analog signal.

All SIDSP sensors go through a rigorous proprietary manufacturing process involving up to 50 calibration points per sensor. During the sensor manufacturing process, each sensor is also encoded with its own individual "temperature compensation" which means common temperature related conditions and changes will not affect the accuracy of the thickness reading.

An ElektroPhysik product that uses this technology, the MiniTest 700 Series, features an ergonomic design, probe sensors and automatic substrate recognition. The MiniTest model 740 easily converts from a built-in integral probe design to a probe on cable simply by changing out the probe cartridge.

The MiniTest 720 features an integral probe with built-in sensor, while the MiniTest 730 has an external probe with sensor on a cable; and the MiniTest 740 features interchangeable sensors with memory to store up to 100,000 readings in up to 100 individual memory fields.

All models include a comprehensive statistics package which includes batch statistics, user selectable high and low limit settings with visual and audible alarms and an IrDA 1.0 transmission data port. A 180-deg. rotatable display allows for easy viewing regardless of what position the operator is in while taking readings.

A quality-checking process related to thickness measurement is soluble salt testing along with the Bresle method for



ElektroPhysik's 700 series measuring device.

measuring the concentration of soluble salts on metal surfaces. DeFelsko's PosiTector is, the company claims, the first conductivity probe designed specifically for the Bresle Method and is compatible with any Bresle Method patch, including the new PosiPatch and the economical DeFelsko Adhesive Patch. Features include an intuitive step-by-step interface that guides users through the Bresle Method, an onscreen timer to report test duration and automatic computation of surface density of salt (mg/m² or μg/cm²) with adjustable test volume. The PosiTector SST is also recommended for the determination of water-soluble contaminants in non-metallic blast media.

The reusable PosiPatch uses a magnetic ring for attaching to steel surfaces and leaves no adhesive residue to clean. Sharp needles are replaced by safe, flexible dispensing tips and air is automatically removed through a watertight, air permeable membrane saving time. The proprietary DeFelsko adhesive patch provides the same performance as latex Bresle patches, but reportedly at a fraction of the price.

Fischer Technology Inc. offers its X-ray fluorescence measuring systems for

non-destructive coating thickness measurement and material analysis with an element range from chlorine (atomic number 17) to uranium (92), right up to 24 elements simultaneously. It is particularly recommended for large specimens or difficult-to-reach locations. Typical fields of application include measurements on large coated parts,

like machine components and housings; mobile measurements in electroplating shops; mobile measurements of precious metals and solution analysis.

One example of this technology in use is the Fischerscope X-Ray XAN 500 unit. This is an energy dispersive x-ray fluorescence measuring instrument for three-point sample support that ensures

safe and repeatable measuring, even on curved surfaces.

The optional compact measurement box carries the whole system safely, and also converts into a mobile bench top instrument, so that small specimens can be easily positioned and reliably measured. A modern silicon drift detector achieves high accuracy and detection sensitivity.

Fischer's fundamental parameter method allows for analysis of solid and liquid specimens as well as coating systems without calibration. The operation and evaluation of measurements as well as the clear presentation of measurement data is performed on a tablet PC, using WinF software.

Elcometer's 456 gauges have ferrous probes that measure non-magnetic coatings on ferro-magnetic substrates. Elcometer 456 ferrous gauges accept any ferrous probe, while the non-ferrous gauges accept any non-ferrous probe.

Probes are fully interchangeable, and available in a number of designs and scale ranges to meet specific applications. Dual FNF probes measure both ferrous and non-ferrous applications with automatic substrate detection.

These gauges accept all ferrous, non-ferrous and dual FNF probes. They feature a maximum operating temperature of 150 deg. C, while the proprietary PINIP probes have a maximum operating temperature of 80 deg. C.

Each 456 gauge and separate probe is supplied with a Test Certificate. For separate gauges, the test measurements are generated using factory reference probes.

There are still technical obstacles to be overcome in thickness measurement. Calibration methods are not always standard across the industry, and clearly some devices will offer higher accuracy or consistency than others.

But as the technology advances, the discrepancies diminish. And as users become more comfortable with the technology, the industry will only benefit from the improved quality control it offers. ■

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Mature Process **STAYS YOUNG**

ELECTROLESS NICKEL plating is hardly the newest kid on the block. Yet, for an old technology, it shows surprising vitality.

There are always ways to explore of boosting productivity, or attaining a better, more uniform coating, and supplier companies continue to push the boundaries of EN. If there are no revolutions in the markets, there are still positive developments.

"I believe the current applications for EN are mature today," says Matthew Sisti, North American product manager, functional technologies with Coventya. "The growth is stunted or flat. However, we see new applications on a regular basis. Some never make it to market whereas others take off."

He goes on to point out that while predicting developments is popular, it's often things no-one anticipates that make the biggest impacts.

"We live in a world where technology changes exponentially," he says. "Could anyone have predicted a self-driving car or voice activated thermostats even five years ago? We're working on one idea that was in development for three years and has finally become a viable product that is just making it to the consumer shelves this year."

"The family of electroless nickel coatings is unique in that it can do so much: chrome replacement, high corrosion resistance, salvage and repair, bright and/or colored. There isn't a surface finish on the planet that offers a plater such a diverse palette of options."

Coventya has several EN technologies that have recently undergone a global launch. The one it stresses as being groundbreaking is its ENOVA RI series, a reduced ion, low nickel technology.

Operating at half the usual nickel concentration, the ENOVA RI systems, Sisti says, deliver improved process and deposit performance while operating at 3 gm/l.

"Our customers have seen increased resistance to salt spray, brighter, smoother deposits and less staining," he notes. "Nickel drag out and emissions are greatly reduced, an

Metal parts coated with high-phosphorus, electroless nickel.

important feature in a world where regulatory agencies are seeking tighter control of nickel metal.

"Reduced ion technology is not a gimmick. We are confident that our industry will look back and wonder why we needed 6 gm/l nickel metal in the first place." His view is that the battle over hexavalent chrome is largely

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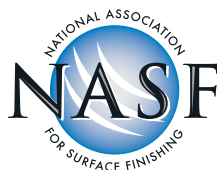
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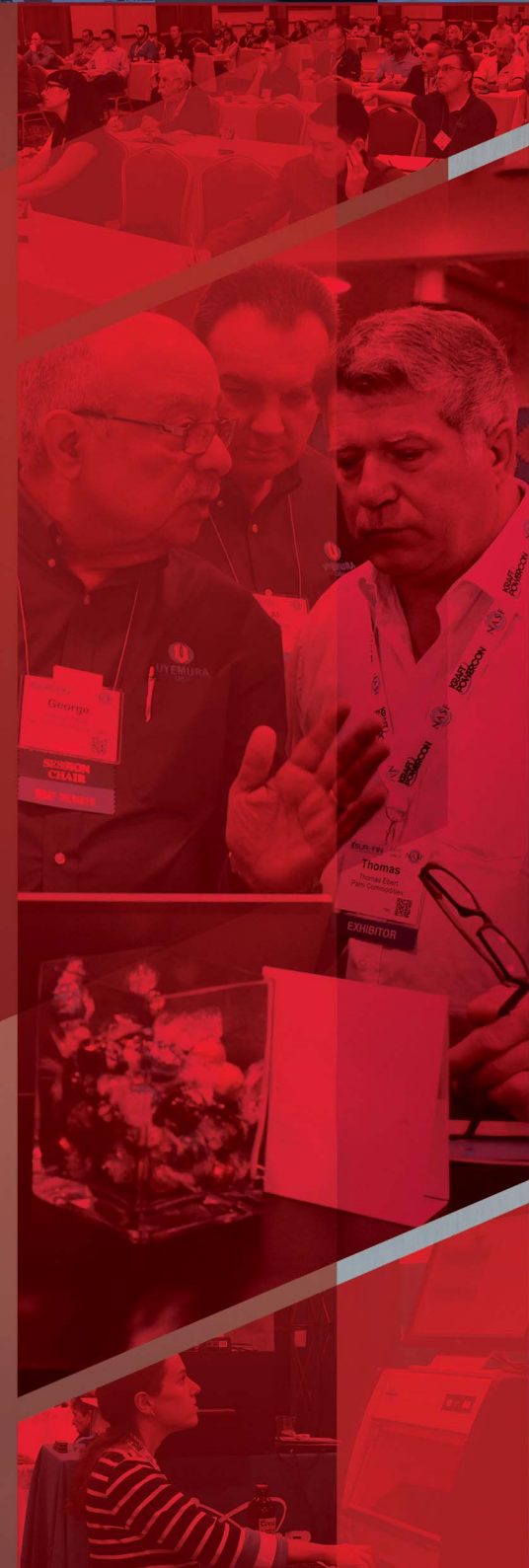
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Fixtures coated in electroless nickel.

over. This means regulatory agencies have started to turn their attention to other substances and elements.

“Nickel is on their list,” he says. “Anyone operating an EN bath over 3 gm/l nickel metal would be wise to prepare for an inevitable tightening of nickel discharge limits and air exposure. It’s interesting that the same voices in 2000 that claimed lead and cadmium-free EN would never be possible are saying the same about low nickel technology.”

Coventya has recognized that it is becoming increasingly difficult to have spent EN solutions hauled away for treatment or recycling. This is due, in part, to the low cost of nickel metal, where the effort to recycle just doesn’t make economic sense.

The company developed a new method of treating spent EN in house that, it says, is more efficient and less costly than current methods available. Coventya’s ENDever process uses a high surface area catalyst that triggers the nickel to plate out rapidly and effectively.

Treatment time is less than two hours and the cost is roughly one-quarter that to have it hauled away. An added benefit is the complete elimination of cradle-to-grave liability.

There are some downsides to consider, Sisti points out, or at least areas that should be of concern.

“With some of the supplier consolidation in recent years, our industry runs a real risk of technology apathy,” he says. “Let’s be honest. We see many shops using technology that is 10, 15, 20 years old. This isn’t healthy for our industry.

“Will having even less suppliers today invite more innovation? Likely not.”

Despite this, he insists Coventya sees the situation as offering an opportunity to move technology forward. The company has set out to be an EN market leader for some time and, he says, “the view from the front affords us a very clear view of what lies ahead.”

Customer support has always been a critical aspect of EN plating, he observes. Unlike electroplating, which is a more static process, EN customers do not have the option to wait a few days for an answer.

“Being at our customer’s side is priority number one,” Sisti stresses. “Having said this, one must be able to deliver results.

“This comes from having properly trained people in the field and the necessary support equipment to back them up. For example, our SEM’s and the material science team that works with them work tirelessly to provide answers to our industry’s never ending questions.”

Among other suppliers with new EN solutions is Asterion, LLC. Its recently introduced Techniplate E-NIC 1200 high speed, high phosphorous electroless nickel process is claimed to provide exceptional corrosion and wear resistance. This process imparts a semi-bright deposit that is RoHS compliant, and meets the stringent requirements of the ELV and WEE directives.

this material, the company says, is production-proven to achieve up to 10 percent higher throughput versus other, conventional electroless nickel processes. The pH self-regulating process affords multiple metal turnovers and may be employed for both rack and barrel applications. Engineered to plate complex part geometries, it offers consistent deposit properties without the use of costly electro dialysis equipment or inefficient bleed and feed techniques.

Further, Techniplate E-NIC 1200 coatings deliver reportedly exceptional corrosion resistance on aluminum, steel and other ferrous substrates. This means this EN is suited for oil and gas applications such as valves, pump rotors and subsea assemblies.

The process is also well suited for automotive powertrain applications including drive shafts, as well as engine, fuel and transmission systems. It will provide reliable compressive stress and stable deposits that meet the harsh environmental conditions and quality demands of both markets.

Lead and cadmium-free EN materials are an important part of the field today. MacDermid Enthone’s ENfinity electroless nickel processes are lead and cadmium-free, and offer compressively stressed deposits, even for mid- and low-phosphorus deposits.

The company claims excellent process stability for ENfinity, as well as reduced downtime for process make-up and disposal. There is also an advanced steady-state continuous process option.

Atotech has a broad portfolio of electroless nickel processes including composite coatings with PTFE and SiC. It can also offer plating on magnesium for high corrosion and wear resistance.

The company says it has a full range of EN materials high, medium and low phosphorus deposits, and lead and cadmium-free products are also available. It also offers a full range of pretreatment products for multi-metal application. ■

Matte Powder Coating



Alesta BK08 20 Gloss, a new, semi-matte powder coating from Axalta, yields an extremely smooth appearance and provides exceptional weatherability for a wide range of interior and exterior projects. The company also says it has exceptional UV resistance.

Other properties include easy application, excellent abrasion and corrosion resistant properties, great resistance to most solvents including oils, acids, and alkalis, and high storage stability. It can be used in a wide variety of exterior projects, and on metal furniture, including office furniture and also vending machines.

Other applications include sports and playground equipment, street furniture, garden furniture, lighting, wheels and motorcycle parts. It can also be applied in general industrial applications.

Axalta is hailing its ability to hide substrate defects, and consistent appearance.

www.axaltacs.com

Functional Silane

Gelest, Inc. has unveiled a new SIVATE A610 activated amine functional silane, which it says improves adhesion, speeds reactivity and increases bond strength in packaging, polymer, micro-electronics and curing applications. It is for use as a tie-layer between organic and inorganic substrates in multi-layer packaging, a coupling agent for high speed epoxy adhesive bonding, phenolic resins, polyurethanes and polyamides, or as a primer for high-speed UV-acrylated urethane cure systems.

SIVATE A610 silane is a proprietary combination of a cyclic azasilane with an amine functional silane that drives a thermodynami-

cally-favored formation of silicon-oxygen bonds to nearly 85 percent completion in less than 15 seconds. It reportedly reacts with more than three times as many hydroxyl groups as conventional ethoxy silanes and has a reaction speed more than 100 times faster than conventional silanes, providing immediate adhesion.

Compared to conventional silanes, SIVATE A610 activated amine silane reacts at high speed and offers adhesion and bonding with a wider variety of substrates, including titanium, copper, aluminum, and EVA copolymers and cellulosic resins.

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